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U.S. Surgeon General's Office.

The

MEDICAL DEPARTMENT
OF THE UNITED STATES ARMY
IN THE WORLD WAR

VOLUME XV

STATISTICS

PART ONE

ARMY ANTHROPOLOGY

BASED ON OBSERVATIONS MADE ON DRAFT RECRUITS, 1917-1918, AND ON VETERANS AT DEMOBILIZATION, 1919

PREPARED UNDER THE DIRECTION OF

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LETTER OF TRANSMISSION.

I have the honor to submit herewith a portion of the history of the MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. The portion submitted is entitled, "*Army Anthropology*," and is Part One of Volume XV, on the subject of STATISTICS.

The various parts of this history, irrespective of sequence in volume numbers, will be published from time to time in such order as material becomes available.

MERRITTE W. IRELAND,
Surgeon General, United States Army.

The SECRETARY OF WAR.

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PREFACE.

The anthropological data contained in this study were collected at the time of the selective service draft of 1917 and 1918 and at the demobilization during the late summer and fall of 1919. The principal data concerning stature, weight, and chest circumference were taken from physical examination schedules (Form 1010 P. M. G. O.)[a] for the first million selective service recruits, and, with special reference to men found with selected diseases or defects, also for the second million.

The preliminary study of the result of the physical examinations of approximately the first million drafted men sent to mobilization camps was published in Bulletin No. 11, Surgeon General's Office, March, 1919. The complete study of approximately 2,000,000 drafted men who were sent to the mobilization camps, and of the 549,099 who were rejected by the local boards as totally and permanently unfit, mentally or physcially, for the military service, was published in Defects Found in Drafted Men, War Department, Surgeon General's Office, 1920.

The anthropological data contained in this work relative to the draft recruits were taken from the same source (Form 1010 P. M. G. O.). A preliminary study of the physical dimensions of the men with the selected diseases for the first million draft recruits was made in 1919. Such diseases and defects were selected as, it was anticipated, might show some deviation from the normal of the physical dimensions. Subsequently, similar data were collected for the second million. Accordingly, the results of the men with the special diseases or defects among the first and second million draft recruits were tabulated and the constants were calculated separately as well as combined. Such a procedure has certain advantages, especially in enabling one to make a comparison between the first and the second million,[b] and to secure a criterion as to the constancy and significance of the findings. In the second million recruits there were found more cases of pulmonary tuberculosis, goiter of both types, errors of refraction, tachycardia, varicose veins, hernia, underweight, and congenital defects, and less, or about the same, of various cardiac disorders, varicocele, hemorrhoids, flat-foot, and "defective physical development."

Unfortunately, no provision was made on the physical examination forms for recording color, nativity, age, or occupation.

Acknowledgment is made of the very kind and hearty cooperation of the entire office of the Provost Marshal General, and thanks are especially due to Colonel James Easby-Smith, Colonel Frank H. Wigmore, and Colonel Frank R. Keefer, of that office. An excellent study containing material for the Civil War

[a] The earlier form used was Form 14 P. M. G. O.

[b] In the tables and illustrations throughout this publication the "first million draft recruits" are designated by the symbol P_1 and the "second million draft recruits" by the symbol P_2.

draft recruits, draft substitutes, and late volunteers, similar to that published in Defects Found in Drafted Men, 1920, and in this work, was prepared after the close of the Civil War by Colonel J. H. Baxter, Medical Corps, Chief Medical Officer, Provost Marshal General's Bureau, in the office of the Provost Marshal General, and published in a two-volume work in 1875, under the title of "Statistics, Medical and Anthropological."

The part of this work that is based on the measurements of approximately 100,000 troops at demobilization has also an interesting history. Having in mind the study made by Dr. B. A. Gould, of the United States Sanitary Commission, on the physique of the Civil War volunteer recruits and troops at demobilization in 1865, and recognizing the importance of special anthropometry to the Army, to science, and to the Nation at large, an effort was made by the National Academy of Science from the summer of 1917 to secure authorization for special measurements, but in the stress of the preparation for warfare and during the war itself, authorization was not deemed advisable by the military authorities. However, an order to measure returning soldiers, to secure data for the fashioning of uniforms, was obtained from the Secretary of War during the latter half of 1919.

Thanks are due to Dr. Charles D. Walcott, Secretary of the Smithsonian Institution, to Colonel William H. Welch, M. C., of Johns Hopkins University Medical School, to Brigadier General Edward L. Munson, Morale Branch of the General Staff, for their continued efforts to secure the necessary authorization for the measurements, and to Colonel A. J. Dougherty, of the Equipment Branch of the General Staff, who finally secured the authorization for the work.

Thanks are also due to The Adjutant General for the permission granted to remove records of physical examinations to the Medical Record Section of the Surgeon General's Office for use in collecting statistical data; to the chief clerk of that office, Mr. Thomas A. O'Brien, for his advice and assistance in arranging the details for the use of the records, and to Mr. John N. Manning, principal clerk, Medical Record Section, Adjutant General's Office, for his very kind assistance in expediting the transfer of the records to and from the Surgeon General's Office.

Acknowledgement is made of the services of Mr. Louis R. Sullivan, anthropologist (formerly second lieutenant, Sanitary Corps), for his careful and painstaking work in the preparation of Tables 17, 18, 19, and 20 (sections of the United States, with the "groups" of them).

Especial mention must be made of the services of the civilian anthropologists and anatomists who supervised the work of taking the measurements of soldiers at the camps during the heat of the summer and early autumn of 1919, frequently at considerable self-sacrifice in other ways.[c] The good quality of the results are evidence of the effectiveness of the service they rendered.

Acknowledgement is also made of the assistance rendered by the clerical personnel of the Medical Record Section, Surgeon General's Office; to Mr. John W. Beath for his care in the supervision of the preparation of most of the large statistical tables; to Miss Anna T. Buckley and Mrs. Lillian K. Taylor for their

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[c] See pp. 56 and 57 for the list of the names of the supervising anthropologists and anatomists, and of the camps where the measurements were taken.

exceptionally excellent and accurate work in calculating the constants of the large tables in the text and appendix; to Dr. Thomas J. Griffith, Miss Martha E. Burton and Miss Viola M. Rose for their careful and painstaking work in supervising the coding of the data on the statistical cards; to Second Lieutenant Glendon H. Armstrong, S. C., for his conscientious and painstaking work in supervising the tabulation of the material for the draft recruits; to Miss Helen R. Markley for her equally excellent work in supervising the tabulation of the data for special measurements of the 100,000 demobilized men; to Mrs. Blanche E. Moore for the preparation of the majority of the graphs; and, indeed, to the entire clerical force of the Medical Record Section, Surgeon General's Office, who cooperated efficiently and intelligently, both during the last year of the war and afterward, in making this report as accurate and valuable as possible.

Acknowledgement is also due to Miss Miriam Kortright, of the Carnegie Institution's Station for Experimental Evolution, Cold Spring Harbor, Long Island, N. Y., who assisted in the calculation of many of the smaller text tables.

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INTRODUCTION.

This study involves the analysis of the three standard physical measurements of the Army, taken on 1,000,000 recruits; with special reference to physical defects, taken on 2,000,000 recruits; and of a set of 17 other measurements made of 100,000 troops at demobilization, for the purpose of securing dimensions for uniforms. The whole study gives an insight into the sizes and proportions of the American male population, ages 21 to 30 years, and is a study of dimensions with reference to health and development, to geographical distribution and environment, and to race and color.

The data were gathered partly at local and camp boards on the occasion of the selective draft, and partly on special order from the War Department to secure detailed measurements of 100,000 troops at the time of demobilization. The statistical work was done by the Medical Record Section of the Surgeon General's Office.

1. IMPORTANCE OF ANTHROPOLOGY IN THE ARMY.

For over a century armies have prescribed limits of size for recruits on various grounds. It is urged that small men (under 60 inches) can not carry the prescribed equipment. Men over 78 inches are more apt to suffer from circulatory and other diseases. The size of men has a relation to the standard food ration. This differs in the English and Italian Armies because of the difference in body size of the soldiers. Troops in an Army camp containing a large proportion of South Italians and Polish Jews from New York city should use a different average amount of food per man than those composed mostly of Scandinavians. The length of leg is important for the classification of troops which are required to make long marches. A knowledge of proportions of facial features is essential to gas-mask manufacturers. A knowledge of the size and proportions of the body is essential to the proper cutting of uniforms. It will also aid in detecting pulmonary tuberculosis and cardiac disorders, as well as thyroid and other diseases. A knowledge of racial characteristics is often necessary to decide on classification when military organizations are being formed on racial lines, such as Negro regiments, Slavic legions, etc. And finally, the whole system of identification, whether by finger prints or by Bertillon's proportions, belongs to the field of anthropology.

2. STATURE.

The mean stature of the first million recruits, ages 21 to 30 years, inclusive, and including white and colored, is 67.49 inches (1,714 mm.). The 100,000 troops measured at demobilization measured 67.72 inches tall (1,720 mm.). The gain of 6 millimeters on the average was partly because they were older, partly because they were straighter, partly because some of the shorter divisions were not included in the hundred thousand, and partly because some short men were rejected when examined for mobilization.

Comparing the average stature of recruits with those of the Civil War, after combining the figures of Baxter,[1] 1875, and Gould,[2] 1869, due allowance being

NOTE.—Superior figures refer to literature and other documents cited, p. 417.

made for the number of men recorded in each case, we find that it is practically the same, being 67.502 in the Civil War, and 67.49 in 1917–1918. We might conclude, then, that the mean stature of men of military age has changed little in the United States in the last 50 years. But this conclusion might be hasty, for the men of 1917–1918 were taken from all parts of the United States, while those of 1864–1865 largely excluded the Southern States, and since the men from these States are exceptionally tall, their inclusion tends to raise the mean stature.

Taking the figures from Gould,[2] 1869, the ages of volunteers showed a greater proportion of men below the ages of 24—that is, of those who had not obtained their maximum growth—than in 1917–1918. This again tends to raise the average stature of 1917–1918 over that of 1861–1865. Baxter,[1] gives a higher average age for draft recruits, namely, 27.307.

It is reasonable to suppose that since this country has received a very large number of immigrants of prevailingly low stature from the southern part of Europe, during the last 50 years the average stature of the population of the country should show a decrease. Such, however, is very difficult to demonstrate mathematically, since the methods used in the recruiting of the two armies, at the two periods, differed so materially. Indeed, the question whether the physique of our young men has changed in the last 50 years thus unqualified has little meaning. Had the racial constitution of the population remained constant—that is, had there been no heavy immigration—then the question would have more meaning; but in view of the tremendous immigration, amounting in some years to nearly a million persons, the physical changes of the racial constitution of our stock have been so great as to mask entirely any slight alteration that may have occurred in the physique of the stock of 50 years ago, through either improvement or deterioration of environmental or economic conditions.

From the different States men differ much in stature. The Texans are tallest, having an average stature nearly 1 inch above the national average. The mean of the Southern States is taller than the average, while the men of Connecticut, Pennsylvania, New York, Massachusetts, and New Jersey have an average short stature. They are the States with many immigrants from southeastern Europe. Among the North Central States, Kansas, Idaho, Oregon, Nebraska, South Dakota, Iowa, and Minnesota have high average statures. At demobilization the greatest increase in average stature was found in the Southern States, which had apparently greater room for improvement; at least in absolute millimeters. The average stature of veterans from Massachusetts, District of Columbia, and Indiana had not increased.

The average stature of the men from different sections revealed points of even greater interest. At the head of the list stands the mountain section of North Carolina, with a mean stature of 68.67 inches, nearly 1.2 inches above the national average. The inhabitants of this section are largely descendants of the early Scotch settlers (a tall race) in Cape Fear River basin. The next tallest mean man is found in the Ozark mountain region, 68.64 and 68.63

inches, and then come the Texas sections, averaging about 68.47. At the top of the northern sections is northern Minnesota with its "big Swedes." Other sections with tall average stature are Mississippi, the mountain sections of Tennessee and Kentucky, other parts of North Carolina, Western Kansas, Oklahoma, Arkansas, California, and Nebraska. At the other extreme are Rhode Island, New York City, the mining area of eastern Pennsylvania, Philadelphia, the manufacturing towns of northeast Massachusetts, eastern New Jersey, and all parts of Connecticut. The inhabitants of these mining and manufacturing sections are not small because of the injurious somatic effect of the miner's and manufacturer's occupations; for the miners of Idaho average far above the mean of the country, and the inhabitants of the flour mill "twin cities" of Minnesota average three-tenths of an inch above the mean of the country. On the other hand, an agricultural section of eastern Pennsylvania has a population that is seven-tenths of an inch below the mean of the country.

Combining sections, the mountain whites have the greatest mean stature and a low variability; they "run tall" fairly uniformly. Next comes the prevailing white agricultural group of the South, then two groups with a large Mexican and Indian population, then the German-Scandinavian groups and those lowland sections with many native whites of Scotch origin. The shortest group is that containing many French Canadians. The next taller is the eastern manufacturing group with its great numbers of representatives of the short races. Of the eight European races that were most numerous in the examination at demobilization the Scotch were the tallest (67.93 inches), next the English (67.75), then the Germans (67.73), the Irish (67.46), the Polish (66.70), French (66.37), Hebrew (65.71), and Italians (65.03). At demobilization the stature of the whites had increased over mobilization from 67.49 inches to 67.71; the Negroes were 67.70 and the Indians were 67.52 tall at demobilization; the Chinese 67.37; and the Japanese 67.30. At demobilization the Negroes were found to be more variable in stature than the whites as 6.91 is to 6.66 centimeters.

3. WEIGHT.

The mean weight of the first million recruits was 141.54 pounds, which is slightly higher than the mean weight (136.05 pounds) of a few thousand "white American" recruits measured at the time of the Civil War (Baxter, Vol. II, p. 15).* At demobilization troops weighed, on the average, 3 pounds more than did recruits and showed about the same increase that veterans showed over recruits in Civil War times. At demobilization in 1919 there was reduced variability in the weight. The soldiers had increased 2 per cent in weight and diminished 2 per cent in variability; the fine physical conditions of army life tended to raise the weight to a uniform high level.

The greatest weight is found in men from the extreme north. The following States stand at the head of the list: Alaska, South and North Dakota, Minnesota, Oregon, Montana, Washington, Nevada, and Idaho. The men from these States are not the tallest, but as we shall see later they are the stockiest. This stocky condition is not entirely racial; it is probably the reaction of the body

* The figures cited are for draft substitutes and late volunteers, as well as for draft recruits *per se*.

to climatic conditions. Just as the Eskimos are robust, so whites in Alaska and the Dakotas tend to become so. Also, under army conditions men from Alaska gained on the average 11.5 pounds. However, the number of men from Alaska examined was small and the averages probably untrustworthy. The average increase for the whole country was only 3.4 pounds. In general, the men from the Southern States showed an increase of weight above the average of the entire country.

The "French-Canadian" sections comprised recruits of the least weight; the eastern manufacturing groups came next, largely because they contained so many small men. That conditions of life were not the principal cause of the low weight is indicated by the fact that the recruits from commuter (suburban) groups also showed a low average weight. Of the Europeans at demobilization, Germans show the greatest average weight, South Italians and Hebrews the least. The Scotch are the most variable in weight, the Poles the least. The Negro troops are slightly heavier and show a greater variability in weight than the white troops. The Japanese weigh the least of all color races. In the southern sections those containing a large proportion of colored men show relatively less obesity than those containing a small proportion of them.

4. CHEST CIRCUMFERENCE.

The mean circumference of the deflated chest of the first million recruits was 33.22 inches. At demobilization uninflated chests of the veterans measured, on the average, 34.94 inches. These results are not strictly comparable, however, as the chest was not measured in the same phase of expansion in the two sets. Despite this there is evidence that the mean chest girth of the veterans had increased about 1 inch. The same thing happened in the Civil War. The recruits from the Northwestern States showed the greatest chest circumference, those from the Southern States, Rhode Island, and the District of Columbia the least. In relative chest circumference Connecticut stands first, partly because of the racial composition of her population. Indeed, all States which have many representatives of the stocky Mediterranean race stand high in this regard. The tall Southerners stand very low in the series of relative chest girth. For the groups, the largest mean chest circumference is found in such as are occupied by the Finns, agricultural Russians, French-Canadians, German-Austrians, and Scandinavians. Scotch sections and the southern white show the smallest relative chest girth. The chest girth of the Negro troops was relatively somewhat less than that of whites.

5. BUILD.

The best index of build is debatable. The square of stature as a base is probably the most satisfactory. On this basis recruits of 1917–1918 showed a much slenderer build than veterans of the World War. Recruits, and also veterans from Alaska and the extreme northwest, revealed the stoutest build; recruits from the southeast the slenderest. Recruits from Colorado, New Mexico, and Arizona had a slender build on account of the presence of so many tuberculous persons in those States, many of whom had gone there on account of the disease. The absolute increase in the index of build of veterans over recruits is, for the whole United States, about 0.5. For Colorado it is 1.4, an increase of 4.3 per cent. This may mean a weeding out of the tuberculous or it may mean an extraordinary reaction to the outdoor life of the Army, or both. Some of the Southern States show more than the average increase of build, some less. The Western States show more increase than the Eastern. New Hampshire gave a reduction of index amounting to 0.60, and Florida and Connecticut also a clear decrease.

As compared with Civil War veterans, recruits from our Eastern States show a stouter build; from States west of the Alleghenies, a slenderer build. Of all the sections, men from Alaska, the Finns, the Scandinavians, and those of the North Central States show the heaviest build. The sections with many orientals and Indians also show stout builds. The slightest build is found in the Ozark region and among the mountaineers of the southern Appalachian Mountains. Certain sections of New Mexico and Colorado come low in the list. Of the eight European races, the Poles have the heaviest build and the Scotch and "Irish" the slightest. The condition found in the "Irish" is probably influenced by the Scotch who live in north Ireland. Of the color races, the whites have the slenderest build; the Indian and Chinese the stoutest.

6. OTHER DIMENSIONS.

(*a*) *Sitting height.*—This is relatively shorter in the Nordic races than in the Mediterraneans. For the color races, it is least in the Negro troops.

(*b*) *Span.*—Span is slightly greater than stature on the average, but individuals differ greatly in this respect; in some the span is 15 per cent greater, in others 15 per cent less than the mean. For the color races the Negroes have the greatest span in relation to stature, 105 per cent, the white troops least (102) per cent. In relation to sitting height the span of Negro troops is 207 per cent, that of white troops 194 per cent.

(*c*) *Sternal notch.*—Among the European races the sternal notch is relatively the highest in the Irish (83 per cent), who consequently have the shortest head and neck. It is relatively lowest in the French (81.8 per cent), who have the longest head and neck. It is high among Negro troops (82.8 per cent) and low among whites in general (82.1 per cent).

(*d*) *Height of pubic arch.*—This dimension measured nearly the physiological length of the leg. In white troops it is about 50.5 per cent of total stature. Among the French the proportion rises to 50.9; among the Italians it falls to 50.1. The Negro troops have relatively long legs (52 per cent) and the Chinese short legs (50.3 per cent).

(*e*) *Neck circumference.*—This measurement for white troops gives a mean of 35.98 centimeters, or 14.16 inches. The mean man wears about a 14¾ or 15 inch collar. The Negro troops have an average neck circumference about 1 per cent larger than that of the white troops.

(*f*) *The breadth of shoulder.*—The breadth of shoulder is measured between the deltoid muscles. In whites it is 41.8 centimeters, or 24.3 per cent of stature. This is nearly 0.3 centimeters greater than the shoulder breadth of Civil War veterans. In Negro troops the shoulder breadth is about 1 centimeter more, and the coefficient of variation is much less. Of the eight European races, the Poles have the broadest shoulders, the French the narrowest, the Italians the greatest ratio of shoulder breadth to height, and the French the least. Orientals and Indians have a relatively greater shoulder breadth than whites, but only the Chinese have it as great as the Negro.

(*g*) *Chest diameter.*—The shape of the chest is given by the thoracic index (transverse diameter × 100 ÷ antero-posterior diameter). The Hebrews have the relatively deepest chests (index 131.9), the English the broadest index (134.6). In general, the Nordic races have broad and shallow chests; the Hebrews, Mediterranean, and Celtic races have narrow but deep chests.

(*h*) *Waist circumference.*—The mean waist circumference of the whites is 77.87 centimeters, or 45.3 per cent of stature. This relative waist girth is greatest among Italians, next among Poles, Hebrews, French, and German, and least among Irish, English, and Scotch. Absolutely the Germans have the largest waists, but not so large a chest girth as the Poles.

(*i*) *Transverse diameter of the pelvis.*—The human pelvis, like that of the anthropoids, is relatively broad as compared with other mammals. The most striking fact about it is the small breadth in the Negro (16.5 per cent of height) and the great breadth in the Chinese (17.5 per cent of height). Whites are intermediate.

(*j*) *Leg length.*—The mean leg length is 2.7 centimeters longer for the Negro troops than white. Similarly, arm span is 5.2 centimeters greater. If the Negro race is more like the simians in arm length than whites are, it is less like the simians in leg length, for the simians have long arms but short legs. Similarly, the relative leg length is greatest (43.3 per cent) in the Negro, except for the Japanese (43.4 per cent), and least in the Chinese (41.4 per cent). Of the eight European races the Scotch and Germans have the greatest relative leg length (41.54 per cent) and French and Italians the least (41.06 per cent and 41.07 per cent, respectively).

(*k*) *Thigh circumference.*—This averages 52.71 for white troops and 54.08 for Negro. It is relatively greatest among Italians and least among Scotch.

(*l*) *Calf circumference.*—This averages for whites 34.09 centimeters, for Negro troops 34.71 centimeters; but in relation to thigh circumference, calf circumference is somewhat less in Negro than in white troops. Many African tribes are characterized by relatively slender calf.

7. THE GENERAL COMPARATIVE PICTURE OF WHITE AND NEGRO TROOPS.

Tables 103 and 104 give the differences in means and standard deviations of 20 dimensions of white and Negro troops. The results of these tables are shown graphically in Plate I. From the tables and the figure it appears that whereas the average height of white and Negro soldiers is practically the same, the Negro men exceeded, on the average, the white men in the following dimensions:

(*a*) *Span.*—The total span of the Negroes is about 3 per cent greater than that of white men.

(*b*) *Leg length.*—Since the lengths of arm and leg are correlated in animals generally, it is in accordance with expectation to find that the leg is longer in the Negro than in the white troops, showing an excess of about 3 per cent.

(*c*) *Arm length.*—As this constitutes an important part of the span, we may expect, as we find, that arm length will be greater in the Negro than in the white troops.

(*d*) *Pubic height.*—This measures the physiological length of leg and shows about the same excess in Negroes as leg length.

(*e*) *Knee height.*—As a component of leg length, knee height shows a slight excess in Negro over white troops.

(*f*) *Forearm.*—This, as in the total arm length, shows an excess in the Negro troops.

(*g*) *Sternal notch.*—This is slightly greater in Negro than in white troops. Consequently the height of neck and head together must be less in Negro than in white troops.

(*h*) *Sitting height.*—Since the total height is the same and the leg length greater in Negro than in white troops, it is clear that sitting height must be less in Negro than in white troops, and such proves to be the case. This smaller sitting height is due in part to the smaller length of head-and-neck in Negro troops as compared with white troops, but also the length of the trunk from the gluteal fold to sternal notch is relatively less in Negro than in white troops.

In contrast with the vertical dimensions the circumferences and diameters show for the most part relatively slight differences between white and Negro troops, largely because they are smaller dimensions. However, certain differences are clearly shown. The circumference of the trunk, whether taken at chest or at waist, is slightly less in Negro than in white troops. The transverse diameter of the pelvis is strikingly less in Negro troops. The breadth of the shoulder, however, is somewhat greater in Negro than in white troops, and the same is true of the circumference of the neck, thigh, and calf.

Despite approximately the same height, Negro troops weighed nearly 5 pounds more than white troops. The index of build of the Negro troops was about 32.7 as compared with 31.6 for white troops.

The general comparative picture we get of the white troops (including a great variety of races) and the Negro troops is this: The Negro troops have relatively longer legs and arms, shorter trunk, narrower pelvis, more nearly circular ellipse of cross-section of the chest; larger, shorter neck; more nearly parallel outlines of the trunk, larger leg girth, and a greater weight than the whites. The waist is less marked because of the relatively small transverse diameter of the pelvis and chest and the greater circumference of the waist. The Negro seems more powerfully developed from the pelvis down and the white more powerfully developed in the chest.

In summary, then, the main differences of shape between Negro and white troops are that the former have relatively longer appendages, shorter trunk, head, and neck, broader shoulders, narrower pelvis, and greater girth of neck, length of thigh and calf, than the latter.

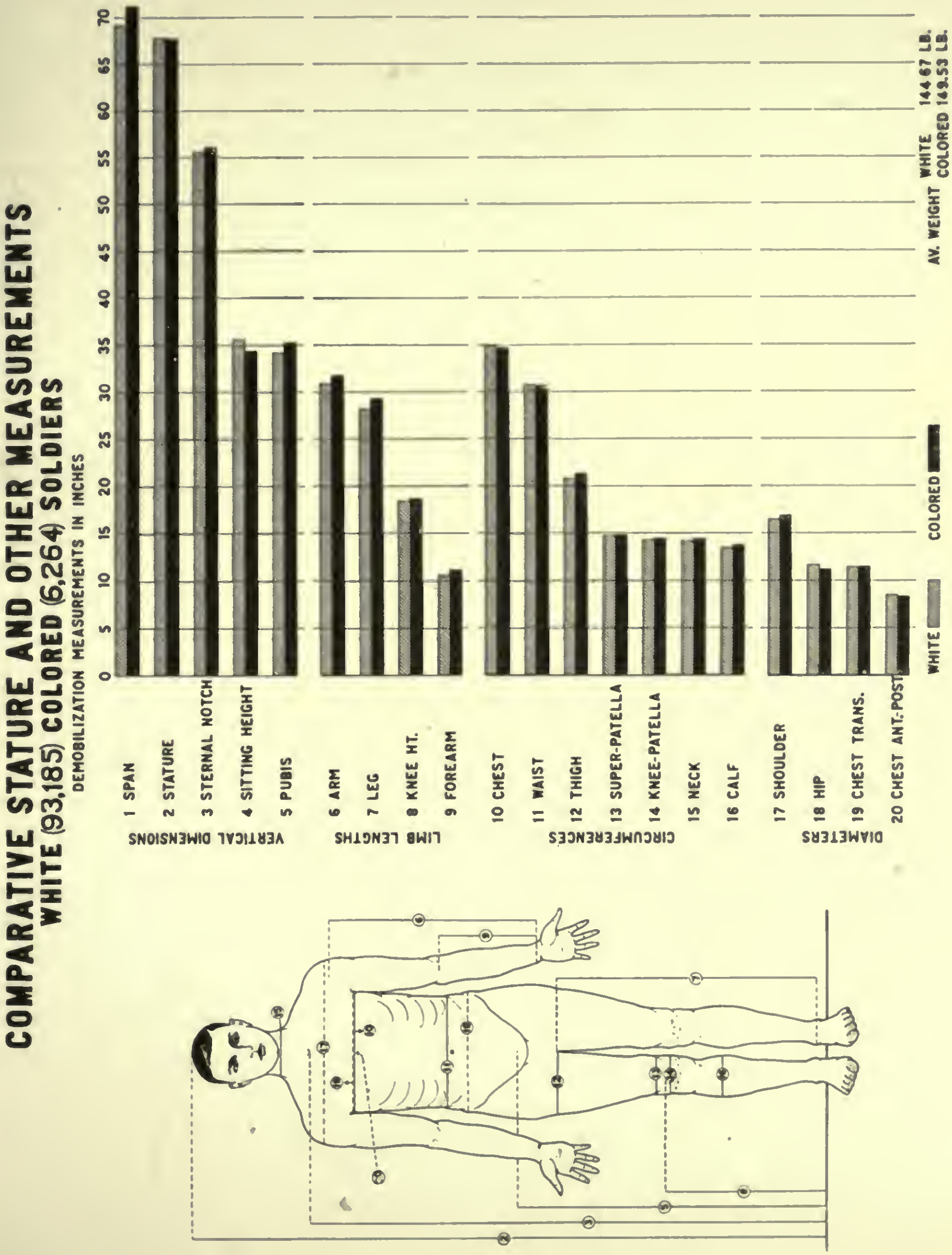

COMPARATIVE STATURE AND OTHER MEASUREMENTS
WHITE (93,185) COLORED (6,264) SOLDIERS
DEMOBILIZATION MEASUREMENTS IN INCHES
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
VERTICAL DIMENSIONS
1 SPAN
2 STATURE
3 STERNAL NOTCH
4 SITTING HEIGHT
5 PUBIS
LIMB LENGTHS
6 ARM
7 LEG
8 KNEE HT.
9 FOREARM
CIRCUMFERENCES
10 CHEST
11 WAIST
12 THIGH
13 SUPER-PATELLA
14 KNEE-PATELLA
15 NECK
16 CALF
DIAMETERS
17 SHOULDER
18 HIP
19 CHEST TRANS.
20 CHEST ANT.-POST.
WHITE
COLORED
AV. WEIGHT WHITE 144.67 LB.
COLORED 149.53 LB.

PLATE I.

8. CORRELATIONS.

Correlation indicates similarity of variation; thus the right and left sides of the body are correlated in their variation. The variations of the right arm and leg lengths are correlated less closely than the same organ on the two sides of the body. The larger the correlation the closer is the physiological or developmental interdependence. Considering white troops only (which were the more numerous), the correlations calculated in order of size are given below. It is to be noted that the maximum correlation (approached by the correlation between the two sides of the body) is 1. The minimum is 0. The departure from 0 marks the relative strength of correlations. Probable errors are omitted; none exceeds 0.0021.

Stature and sternal notch	0.857
Stature and span	.794
Stature and pubic arch	.696
Stature and sitting height	.663
Weight and chest circumference	.660
Arm and forearm	.584
Neck girth and chest girth	.506
Stature and knee height	.436
Leg length and knee height	.418
Pelvic diameter and waist girth	.351
Chest girth and pelvic diameter	.307
Transverse and antero-posterior diameter of chest	.271
Chest circumference and sitting height	.242
Waist circumference and leg length	.159

It will be noticed that the high correlations are often between the measurement of a whole organ and a part of it, like stature and height of sternal notch or of pubic arch. But stature and span are not of this kind, nor weight and chest circumference. However, arm length (span) and leg length vary together and leg length is an element of stature; consequently span varies with stature. When the two dimensions are not closely related, as in waist circumference and leg length, the index is low.

9. DISTRIBUTION OF EYE COLOR.

Eye color is a rough index of race. The fair-skinned, blond-haired people of Europe belong to the "Nordic" race, and have clear blue eyes. The Mediterranean peoples have dark skin, hair, and eyes. The States with the largest proportion of blue eyes have the largest Nordic element. Alaska, with only seven measured, and Wisconsin, with 1,441, lead with 54 per cent; Maine and Vermont also have a large proportion and stand high (probably because of their French-Canadian blood). Then come Minnesota and Oregon. At the bottom of the list stands Florida with only 9 per cent of clear blue eyes. The Negroes, Cubans, and West Indians in its population have dark eyes. Next above Florida comes Georgia and then Nevada, Alabama, Tennessee, South Carolina, and other Southern States, with many Negroes in the population. Roughly, the proportion of clear blue eyes diminishes with latitude. Of the eight European races, Irish and Scotch have the highest percentage of blue eyes (clear blue and blue with brown spots combined), 73 and 71 per cent, respectively. Polish and English have about 66 per cent, German 65 per cent, French 49, Hebrew 37, and Italian 20 per cent. For the United States as a whole the percentage of blue eyes seems to have dropped from 45 per cent in Civil War times to 38 per cent 55 years later. Blue eyes are passing.

10. DISTRIBUTION OF HAIR COLOR.

Since no measure was applied to hair color, the results are not closely comparable *inter se*. In general, the States with the largest proportion of blue eyes have the largest proportion of blond or flaxen hair. Oregon leads with 28 per cent flaxen hair, Montana comes next with 23 per cent, Utah next with 14 per cent, and then Minnesota and South Dakota with 10 per cent each. The Gulf States show less than 1 per cent.

11. PHYSICAL DIMENSIONS IN RELATION TO DISEASE.

A special study has been made of stature, weight, and chest circumference, with the interrelation of the three measurements of recruits, found with certain diseases and defects. A close relation is found between the physique and defects. Tall men are especially prone to varicose veins, varicocele, pulmonary tuberculosis, cardiac disorders (both functional and organic), and goiter (both simple and exophthalmic). A very high percentage of men with low stature were found with defective teeth and refractive errors of the eye. Heavy weight was found in men with varicose veins and flat-foot; the weight was slightly above the average for those with simple goiter and hypertrophic tonsillitis, while for both organic and functional diseases of the heart and tuberculosis, as well as errors of refraction, the weight was below the average. Chest circumference above the average was found in men with varicose veins and asthma; for the first condition, the large chest was associated with great stature and weight; for the latter with low stature and weight, and hence it seems that large chest was a result of the disease itself. Small chest circumferences were found specially in men with tuberculosis, organic and functional diseases of the heart, and errors of refraction.

Considering the three measurements in the relation of the one to the other, the following points are noted: Men with varicose veins are tall, heavy, and large-chested; with varicocele and hemorrhoids, tall, small-chested, and underweight; with pulmonary tuberculosis and all cardiac disorders, both organic and functional, tall, small chest, and of low weight; with both goiters, the stature is above normal and the chest is small, but for the exophthalmic form the weight is low, while for the simple it is normal. Men with hypertrophied tonsils have normal build; those with relaxed inguinal rings and hernia were slightly below the average in stature and slightly below weight, with relatively small chest; those with flat-foot have low statures, but are very heavy; those with errors of refraction have low stature and low weight, but relatively normal chest. Asthmatic cases show low stature and abnormally low weight, but markedly hypertrophied chest. Men with defective and deficient teeth and congenital genital defects are short, underweight, and small-chested.

The population with different sizes of stature, weight, chest circumference, and build show diverse variability. High variability results when two or more dissimilar classes are combined in one group. Thus myopics who are average-sized combined with a short racial group make a very variable size group. Men in early stages of asthma make of asthmatics a group very variable in chest circumference. Where size and defect are intimately bound together as cause and effect, variability is low. Weight and pulmonary tuberculosis, weight and mitral stenosis, varicose veins and stature, are thus bound together, and variability of the dimension in the population with the disease is low.

Thus, not only the mean dimensions associated with any disease, but also their variability, are of importance in judging the cause and effect of any disease or defect on the human proportions.

SECTION I.

PHYSICAL MEASUREMENTS.

A. THE IMPORTANCE OF ANTHROPOMETRY IN THE ARMY.

An army is made up chiefly of men and their machines. The men deserve first attention. Their mental qualities and their behavior are of importance, but of no less obvious importance is their physique. The significance of the physique of the soldier to the army is everywhere recognized and much effort is expended to select the physically fit. A soldier must have a good nervous system, heart and vessels without serious defect, good feet, strong inguinal muscles and fascia, strong bones and ligaments, and well-functioning joints, keen sense organs, and freedom from organic diseases.

Not only must the soldier be healthy, but he must fall within certain limits of size. In the British army the lower limit of stature during the World War was 60 inches (152 centimeters); in the French army, 154 centimeters (60.6 inches); in the Italian army, 150 centimeters (59.05 inches).[3] It may be interesting to consider the following comparative data taken from Baxter[1] (Vol. I, pp. IX–XXXVII). In France the lower limit of stature in the year 1701 was 162 centimeters (63.9 inches); in the year 1804, 154 centimeters (60.6 inches); after Napoleon's return from the fatal invasion of Russia all limitation of the height of conscripts was practically abolished; in the year 1818, 157 centimeters (61.8 inches); in 1830, 154 centimeters (60.6 inches); in 1832, 156 centimeters (61.4 inches); in 1868, 155 centimeters (61 inches); in 1872, 154 centimeters (60.6 inches). Great Britain, in the year 1872, adopted these standards: Cavalry, 66 inches (167.6 centimeters) to 71 inches (180.3 centimeters); Infantry, 165.1 centimeters (64.5 inches) upward. Belgium, in the year 1871: Infantry, 155 centimeters (61 inches); Switzerland, in the year 1857, about 154.9 centimeters (61 inches); Prussia, in the year 1875, 157 centimeters (61.8 inches); Austria, Infantry, in the year 1869, 155.45 centimeters (61.2 inches). In the United States the regulations for the year 1802 placed the minimum height at 66 inches (167.6 centimeters). In 1846 the minimum was placed at 63 inches (160 centimeters); in 1861 at 63 inches and in 1864 at 60 inches (152.4 centimeters). These minimum measurements in 1861 and 1864 were for the Regular Army only. Baxter (Vol. I, p. 22) states that the minimum height authorized by the War Department at the outbreak of the Civil War was 63 inches, and continued to be the regulation height until 1864. However, the enrollment law expressly declared that no exemption should be made on account of height. Gould[2] (p. 90) also says that no limit of stature appears to have been established for volunteer troops of the Civil War, and the rule of the Board of Enrollment was that: "The matter of stature shall be considered only in the general examination as to the physical fitness of the men for military service." In 1867 the minimum was placed at 62 inches; in 1874 at 64 inches (Baxter,[1] Vol. I, XLIX). During a period of years preceding 1917 it was 64 inches (162.6 centimeters). In the regulations governing physical examinations under the selective service act, 1917 (P. M. G. O., Form No. 11), the minimum height was placed at 61 inches (154.9 centimeters) and the maximum at 78 inches (198.1 centimeters), and it was stated: "To be acceptable men below 64 inches in height must be of good physique, well developed, and muscular." Also it was stated that "unless exceptionally well proportioned, men above 6 feet 6 inches in height should be rejected." In January, 1918, the minimum height was lowered to 60 inches (152.4 centimeters) (P. M. G. O. Changes No. 3). Special Regulations No. 65, authorized June 5, 1918 (but which came into general use some weeks later), set the minimum stature at 63 inches (160 centimeters); but this was again soon lowered, by an order of the War Department, to 60 inches. Consequently, the minimum height was 61 inches (154.9 centimeters) for the period June, 1917, to February, 1918, and 60 inches (152.4 centimeters) thereafter. Military men urge that soldiers shorter than 60 inches (152.4 centimeters) are not capable of carrying the weight of the prescribed equipment.

The stature of the recruits is of military importance in other respects than as an index of their ability to carry weight. The Division of Food and Nutrition, Office of the Surgeon General of the Army, was interested in the size of soldiers in relation to the standard ration, since this would vary with the size of the body. The 77th Division (containing a large proportion of South Italians and Polish Jews from New York City) required a smaller average ration than the men of the 88th Division, mobilized at Camp Dodge and containing a large proportion of Scandinavians and Germans. The knowledge of the size of the body is also important for making standards for uniforms.

Stature is correlated with length of leg, and length of leg is important from a military standpoint. Prof. Manouvier,[4] of Paris, has pointed out that the marching capacity of a company is determined more by the length of leg than by total stature. Hence, soldiers in ranks or platoons, should be sorted on the basis of leg length (crotch height or pubic height) rather than by total stature.

A knowledge of the size of body is important because it varies markedly with the race. Thus, among the races represented in the United States, the average stature of the male is distributed as shown in Table I.

TABLE 1.—*Approximate average stature of principal races represented in the United States, arranged in order of size (from Martin,[5] pp. 213–217).*

Race.	Mean stature (centimeters).	Inches.
Cochin Chinese	158	62.2
Japanese	159	62.6
Ruthenians	160	63.0
Polish Jews	161	63.4
South Italians	162	63.8
Roumanians from Hungary	164	64.6
French	164	64.6
Great Russians	164	64.6
Poles from Galicia	165	65.0
Roumanians	165	65.0
South Russian Jews	165	65.0
White Russians	165	65.0
Belgians	166	65.4
Bavarians	166	65.4
Finns	167	65.7
Dutch from Holland	168	66.1
Danes	170	66.9
Serbs	170	66.9
Negroes of various origins	160–170	63.0–66.9
American Indians	162–173	63.8–68.1
Little Russians	170	66.9
Letts	171	67.3
Swedes	171	67.3
Norwegians	172	67.7
English (middle class)	173	68.1
Scotch	175	68.9

Thus, between the Cochin Chinese, with a mean stature of 158 centimeters (62.2 inches), and the Scotch, with a stature of 175 centimeters (68.9 inches), is a range in the means of 17 centimeters, or over half a foot.

This diversity of race size has an important bearing on the clothing of the Army. The tariffs of sizes to be supplied to any distribution zone for a draft army will depend on the racial constitution of the population living in that zone. This racial constitution can be approximately known by consulting the most recent census report, which gives for each State the desired information as to country of birth of residents and of their parents.

Another point of contact that the Army has with the race is in forming regiments or companies of particular races. Two divisions (the 92d and 93d) were comprised wholly of Negro troops. The question whether a given person had Negro blood must often have arisen.

On July 31, 1918, the War Department, by General Orders No. 70, issued regulations to govern the raising of troops for a Slavic legion which should be composed of Jugo-Slavs, Czecho-Slovaks, and Ruthenians (Ukranians). It was ordered that: "Companies will, if practicable, be composed of members of the same race, i. e., Jugo-Slavs, Czecho-Slovaks, or Ruthenians. So far as practicable, Italian regiments will also be organized on this basis. All officers, except field officers of these regiments, will be, so far as practicable, of those races of which the units are composed." It is clear that many cases might arise of doubtful classification, and the special knowledge of anthropology would in such cases be of value in helping Army officials to classify. Actually, on account of the practical cessation of mobilization in the autumn of 1918, the plans for raising such military units composed of European races did not progress far. The incident serves, nevertheless, to illustrate the need in the Army of special knowledge of anthropology.

Again, there is the importance to the Medical Department of a knowledge of the physical dimensions of soldiers individually and in the aggregate or on the average. Thus, despite all other medical methods for diagnosing pulmonary tuberculosis, loss of weight remains one of value. Hence, weight at induction needs to be known accurately. As weight in relation to stature is more important than absolute weight, stature needs to be known accurately. Chest circumference is important for the same reason as weight. The average weight is important in relation to the size of the mess ration as indicated above. Moreover, a knowledge of the proportions of man in relation to certain diseases will direct the wise physician to exercise a special care over the health of men of aberrant proportions, such as narrow or flat chest, extremely long or extremely short legs, a large neck circumference, etc. Special reference will be made in a later section, under the different measurements, of the military bearing of each.

There is still another class of work of an anthropological sort that has to be done in raising and maintaining an army, and that is making and classifying finger prints and other means of identification.

One of the lessons taught by the experience of raising an army in 1917–1918 is that, at the outset, there should be appointed among the officers of the Medical Department a broadly trained anthropologist to whom should be assigned the following tasks: (1) Collaboration in drawing up schedules of the physical examinations; (2) consultation on the taking of the standard measurements and observations on recruits throughout the country and especially at military camps and posts; (3) general supervision of the service of taking identification data; and (4) organization of the service of answering questions that may arise about the racial classification and racial differences of individuals.

B. HISTORY OF THE ANTHROPOLOGICAL WORK IN CONNECTION WITH THE ARMY, 1917–1919.

I. ANTHROPOMETRIC WORK IN CONNECTION WITH THE DRAFT RECRUITS.

On April 6, 1917, Congress declared war against Germany, and on May 17 the selective service act became a law. In accordance with the provisions of this act, 9,925,751 males between the ages of 21 and 30 were registered between June 5, 1917, and September 11, 1918. In addition to this number, between the date of the first registrations, June 5, 1917, and August 24, 1918, 912,564 young men who had in the meantime reached the age of 21 registered. On September 12, 1918, 13,395,706 men between the ages of 18 and 20 and 31 and 45 were also registered. The total number for the three registrations for the United States without the Territories then amounted to 23,908,576.[6] Out of the approximately 10,000,000 males registered on June 5, 1917, 2,510,706 [7] were measured and examined physically by local boards prior to December 15, 1917. Of this number, 516,212 [8] were entrained for camps. After December 15, 1917, due to the reclassification, upon economic grounds, of all registrants who had not entrained for camps, 3,247,888 [9] men were placed in Class 1. This number included such of the men examined prior to December 15, who were subsequently classified in Class 1, as had not already (prior to Dec. 15, 1917) entrained for camps.

The records of the physical examinations of all the selective service men who had entrained prior to December 15, 1917, and of such of the Class 1 men as were sent to mobilization camps subsequent to that date, was forwarded to the Office of the Adjutant General of the Army.

In October, 1917, Major Albert G. Love was assigned to duty [10] as officer in charge of the Medical Record Section of the Sanitation Division, Surgeon General's Office. Lieutenant (later major) Robert H. Delafield,[a] was assigned to duty [10] as assistant to the officer in charge. Steps were immediately taken to reorganize the section for its war work. This work consisted, in brief, of the receipt of all records of sickness or injuries of any character that occurred among the United States soldiers; the examination, care, and preservation of these records; the furnishing of information from them to authorized authorities requesting it; the compiling of statistical material from them for use in the Annual Report of the Surgeon General and in the Medical and Surgical History of the War; and the preparation of the statistical section of the Surgeon General's Report, with the editing of the whole.

Prior to that time the statistics for the report had been compiled by hand method. A punch-card system was at once installed; a code book prepared and published; and Hollerith tabulating and sorting machines installed. It

[a] Major Delafield went overseas at his own request in March, 1918, to assist in installing a Hollerith punch-card system in the office of the Chief Surgeon, A. E. F., par. 14, S. O. No. 54, W. D., 1918.

was soon apparent that the work of the section would be incomplete without a thorough statistical study of the reports of the physical examination of the draft recruits. It was also apparent that this work could be done more economically in this section than elsewhere, as it was engaged in similar work with the records of the sick and injured in the military service.

The office of the Provost Marshal General, as well as the Surgeon General's Office, recognized that the data recorded on the reports of the physical examination were of great importance, not only on account of the records of the physical defects noted thereon, but also on account of the anthropological information. Consequently, on December 9, 1917, the Provost Marshal General and the Surgeon General signed a joint communication [11] to the Adjutant General requesting that the Surgeon General's Office be allowed to take, under proper safeguard, to the building where the Medical Record Section of the Surgeon General's Office was located, a limited number of these records of physical examination from day to day, that the statistical data might be extracted on Hollerith cards from a sufficient number of them. The Adjutant General, recognizing the desirability of this statistical study, approved the request.[11]

Instructions were subsequently issued by the Provost Marshal General to the local boards directing them to send to the Office of the Surgeon General one copy of the report of the physical examination of all Class 1 men who had been examined and found by them to be totally disqualified, mentally or physically, for all military service. As the result of this order 549,099 records were received. A Hollerith statistical card was immediately drawn up for this work and a compilation of the statistical data was begun and carried on as opportunity permitted.

In April, 1918, Dr. Charles B. Davenport, of the Carnegie Institute of Washington, became associated with the Section of the Medical Records, where he served in civilian capacity until commissioned major in the Sanitary Corps in July, 1918. A subsection of anthropology was also authorized as a part of the Medical Record Section. The specific purpose of the organization of this subsection at that time was defined as follows: [12]

> To secure the highest quality of the measurement of recruits and of identification records as done by the Surgeon General's Office for the purposes of the War Department; to assist, as called upon, in the analysis and synthesis of the statistics compiled from medical records; * * * and to assist the War Department in all questions about racial dimensions and differences.

First Lieutenants E. H. Hawkes and Wilson D. Wallis and Second Lieutenant Louis R. Sullivan were appointed in the Sanitary Corps for anthropological work, with special reference to supervising the finger-print identification work and the recording of the physical examination data at some of the larger camps.[13]

As the result of the statistical study of the draft records, "Physical Examination of the First Million Draft Recruits, Methods and Results," was published in Bulletin No. 11 of the Office of the Surgeon General, March, 1919. This dealt with the varying physical standards and their application at mobilization camps and the distribution of physical defects by States and also by urban and rural districts. Subsequently the complete study of the records of the physical examination of 1,961,692 of the selective service men who were inducted and sent to military camps, and of 549,099 who were rejected by the local boards as totally, physically or mentally, unfit for military service, was completed and published in "Defects Found in Drafted Men."[9] In this publication the distribution of the defects is given not only for States and urban and rural districts, but also for 156 population sections of the country separately and grouped into an occupational series, a physiographic series, and a racial series.

Many of the defects and diseases whose distribution is described in these reports are of great anthropological interest, especially the distribution in the racial series of grouped "sections." Some of the findings are that sections containing many French Canadians are characterized by defective appendages (but not an excessive amount of flat-foot), of defective physical development, deficient chest measurements, underweight, underheight, malnutrition, monorchism, cryptorchism, cleft palate, tuberculosis, nervous and mental defects, defective vision, otitis media, defects of the heart, valvular heart disorders, and bad teeth. They form the poorest of the groups from a military standpoint ("Defects Found in Drafted Men,"[9] p. 299).

The sections containing a large proportion of Scandinavians are characterized by little tuberculosis, venereal diseases, alcoholism, and drug addiction, and by a large excess of goiter and a slight excess of curvature of the spine.

Sections containing a large percentage of "Germans and Austrians" are characterized by relatively little tuberculosis, venereal disease, cancer, arthritis, and obesity, but more than the average of goiter, alcoholism, and drug addiction. Epilepsy, hysteria, mental deficiencies, and defective speech are less common than the average, also teeth defects and hernia. But varicose veins, varicocele, and flat-foot are in excess.

Sections containing a large proportion of Finns have relatively high ratios for multiple sclerosis, monoplegia, disorders of heart action, chorea, defective teeth, and cleft palate.

Sections containing 10 per cent or more of agricultural Russians have high ratios for errors of refraction, diseases of the cornea and retina, otitis media, valvular diseases of the heart, varicose veins, foot defects, and muscular atrophy.

Sections containing many Indians showed a prevalence of well-developed men, except for the congenital defect of cleft palate and harelip.

Sections of the black belt of the South gave an excess of venereal disease, benign tumors, arthritis, mental deficiency, hysteria, dementia praecox, psychoneuroses, manic-depressive psychoses, valvular disease of the heart (especially endocarditis, cardiac hypertrophy, tachycardia), and arteriosclerosis. The following are less than normally common among negroes: Curvature of spine, obesity, the minor paralyses, ear and eye defects, diseases of the throat, varicocele, varicose veins, cardiac arrhythmia, pes planus, cryptorchidism, hypospadia, cleft palate, and harelip.

Measurements of draft recruits.—It has long been recognized that in the Army recruit service the following dimensions should be taken of all recruits: Stature and chest circumference (at expiration and inspiration), and since the Civil War the weight. These measurements were actually taken for all selective service recruits. The regulations issued to the local boards and to the camp examining boards prescribed that all of them be taken with the recruits stripped.

The instructions issued by the Office of the Surgeon General before the central examining boards were established, to the examiners at the National Army Cantonment, Memorandum No. 3, August 22, 1917, directed (directions being given in italics) "weight, height, and chest measurements will be copied from data on physical forms furnished by the local boards except in those cases referred to the specialists for retaking weight, height, and chest measurements." Subsequently, after the central boards were established, all measurements were retaken by them.

In the preparation of the statistical cards from the reports of physical examination of 1,961,692 of the selective service men sent to camps who were studied statistically, and of the 549,099 rejected by the local boards, provisions were made for recording the height, weight, and chest measurements, at both inspiration and expiration. These data were tabulated for 994,206 men (among the first million sent to camp) and also in relation to certain selected diseases. Subsequently these same data in relation to the same diseases or defects were tabulated for the second million draft recruits. Accordingly the results from such of the draft recruits as were found upon examination to be affected with the selected special defects or diseases among the first and second million men were tabulated and the constants calculated separately as well as combined. Such a procedure has certain advantages in allowing, especially, a comparison to be made between the first and second million and to secure a criterion as to the constancy and significance of the findings. Such differences as are noted between the findings are to be ascribed in part to the improved technique of the later examining boards, both local and camp; to certain variations in the standards for the acceptance of recruits; to the inclusion in the second million of some young men who reached the age of 21 after preliminary registration; and finally, though by no means of the least importance, to the fact that in the preparation in this office of the statistical cards for the first million recruits only the major military defect was recorded, while in the preparation of them for the second million, a second defect was also recorded.

When transcribing information from the forms of the physical examinations of draft recruits, where the measurements showed a fractional part of a pound or an inch less than ½, the fraction was dropped. If, however, the fraction was ½ or more of an inch or pound, it was counted as 1, thus raising the measurement to the next unit. This tends to lower the average weight for race given. When comparisons are made with data published in other publications, such as Gould, 1869, and Baxter, 1875, where ½ inches are recorded and used, this difference is material.

It will be noted that the number of men measured both for demobilization and mobilization varied in the different tables. This was due to the frequent omissions of certain measurements from the original return, or to the necessity of excluding such as were obviously incorrect.

II. ANTHROPOMETRIC WORK IN CONNECTION WITH DEMOBILIZATION.

Part of this work is based upon the measurement of the 100,000 troops at demobilization and has an especially interesting history. Having in mind the study made by Gould [2] on the physique of the Civil War recruits and troops at demobilization, and recognizing the importance of anthropometry to the Army, to the Nation, and to science, an effort had been made since the summer of 1917 by the National Academy of Science to secure authorization for special measurements. A special committee was appointed, which met and rendered a report recommending special anthropological measurement. In the stress of the preparation for warfare such authorization was not deemed desirable by the military authorities, nor was such work considered advisable during the period of active hostilities. However, in the latter half of 1919 an order was issued by the Secretary of War to have special measurements of 100,000 men taken upon demobilization, to secure data for dimensions for uniforms.

A telegram was sent by the Surgeon General to Major Davenport, who had been discharged at his own request in January, 1919, as major in the Sanitary Corps (though continuing to serve in the Medical Record Section as a civilian three days a week until about June 1, 1919), requesting him to supervise the measurements to be taken. In accordance therewith he reported to the Surgeon General of the Army on July 7, 1919.

1. ORDERS ISSUED RELATIVE TO SPECIAL UNIFORM MEASUREMENTS.

Orders authorizing special measurements.—On June 9, 1919, the following order was issued by the Acting Director of Operations, General Staff, to The Adjutant General of the Army:

Subject: Sizes of clothing.

11. The Secretary of War further directs that 105,000 data cards be printed by The Adjutant General and turned over to the Surgeon General of the Army to be used in recording data ordered in Section 1. These cards must show the exact places measurements are to be taken in language sufficiently technical to insure accuracy by Medical Department personnel who are to do the work. In addition to the written descriptions of the locations where measurements are to be taken, the data cards should have outlined figures of the body showing front view, with the exact places measurements are to be taken indicated on them, so that they will be readily understood by the persons employed to make the manikins from the measurements. A sample of the outline figures to be shown in the data card will be furnished to The Adjutant General to turn over to the Surgeon General when completed. The measurements and other information to be indicated on the data cards will include the following:

(1) Name, ... (2) Home State, ... (3) Born of native white parents? .... (4) Born of parents of African descent? .... (5) Nationality, if born in a foreign country, or of parents who were born in a foreign country, ... (6) Height (taken standing), ... (7) Height (taken sitting), ... (8) Measurement from finger tip to finger tip with arms extended horizontally, ... (9) Distance from spinous process of vertebra at level of spine of scapulæ laterally back of shoulder and behind elbow (arm held horizontally with elbow bent) to level of tip of styloid process of ulna, ... (10) Distance, when standing, from floor to presternal notch, ... (11) Height from floor to superior border of pubis, ... (12) Transverse diameter of shoulders at level of acromion processes, ... (13) Transverse diameter of chest just under the arm; that is, at level of articulation of humeri with scapulæ, ... (14) Transverse diameter of hips level of anterior-superior spines, ... (15) Anterior-posterior diameter of chest level of junction of ensiform with gladiolus, ... (16) Circumference of chest, level of nipples, ... (17) Circumference of waist, level of umbilicus, ... (18) Circumference of thigh below crotch, ... (19) Circumference of leg just above patella, ... (20) Circumference of knee, level of patella, ... (21) Circumference of calf (at largest part), ... (22) Circumference of leg just below level of tuberosity of tibia, ... (23) Inside length of leg from crotch to tip of internal malleolus of tibia, ... (24) Circum-

ference of neck, level of larynx, ... (25) If soldier has been fitted by Resco shoe-fitting system under supervision of an officer, state size of shoe worn, ...

NOTE.—Tape used in measurements should be drawn snug without looseness or compression. Calipers should be used in taking diameter measurements. All measurements will be given in the metric system.

On June 25, 1919, The Adjutant General of the Army sent the following to the Surgeon General:

Subject: Measurement for sizes of clothing.

1. You are directed to have measurements of 100,000 men made. When measured, men should be naked, except for breechcloth, and should have had at least four months of military training. Measurements shall be taken as follows:

Zone 1, 6,000; zone 2, 24,000; zone 4, 3,500; zone 5, 10,500; zone 7, 26,000; zone 8, 10,500; zone 9, 3,500; zone 10, 4,000; zone 11, 4,500; zone 12, 1,500; zone 13, 6,000.

When men about to be demobilized are measured, the taking of the meansurements shall not be permitted to interfere in any way with demobilization. The personnel used in taking these measurements should receive such uniform instruction as will insure correctness and uniformity in data.

2. In zones 5, 9, and 10, 35 per cent, 30 per cent, and 25 per cent, respectively, of the men measured should be of African descent. Data cards will be furnished by The Adjutant General, as per memorandum herewith, and when completed should be transmitted to the Equipment Branch, General Staff. These measurements will be used in making manikins from which a pattern for each size can be made.

Haste was essential, since demobilization was being rapidly completed, and at times it was feared that it would be impossible to complete the quota before demobilization had come to an end. This state of mind reflected in some of the orders cited below.

(*a*) *Detailed directions for measurement.*—On July 23 the following letter was issued to camp commanders by The Adjutant General:

Subject: Measurements for sizes of clothing.

1. The Secretary of War has directed the Surgeon General to have measurements taken of 100,000 soldiers in various camps and stations in the United States, to be used in the construction of manikins of various sizes with the aim of affording better-fitting uniforms for the Army. Your camp has been designated for taking the measurements of ....

2. An expert anthropologist will be sent to your camp by the Surgeon General to supervise the measuring of the requisite number of men. He should be directed to report to, and to consult with, the camp surgeon, under whose general direction it is intended that the work shall be conducted. To enable him to satisfactorily perform this work the following enlisted personnel is required, which should be furnished by you from whatever source you may see fit. In view of the great scarcity of Medical Department enlisted personnel now on duty in camps it is not contemplated that the number required be drawn from this source alone, but from other staff and line troops as well.

One assistant measurer for every 80 men measured per eight-hour day.

These men should be selected with a view toward accuracy and reliability, noncommissioned officers if practicable.

One enlisted recorder for every assistant measurer.

One enlisted recorder for every 90 men measured per hour, for the purpose of recording descriptive data (name, age, birthplace, etc.) on the face of the blank forms.

One enlisted weigher and one recorder for each 90 men weighed per hour.

One enlisted orderly for every four assistant measurers.

3. In addition each measurer will require about 25 square feet of working space, which should be well lighted, inclosed, and sufficiently quiet so as not to interfere with the proper recording of the data; sufficient furniture, stationery, etc., to enable the work to be expeditiously performed will also be necessary. Blank forms for recording measurements will be furnished by The Adjutant General. The expert anthropologist will bring with him the necessary measuring apparatus.

4. It is directed that the measurements be taken while the men are stripped, and in the case of men who are about to be demobilized who are measured the procedure should not be permitted to interfere in any way with the demobilization. It is believed that this can be accomplished by having these measurements taken as a final step in the physical examination prior to demobilization.

5. As this work is of great importance, you are directed to afford the expert anthropologist every facility possible, both in personnel and material, for performing the duties with which he is charged.

6. You will assign to this work only men of the Regular service. Their work will be so arranged and coordinated by the demobilization officer as not to materially lengthen at any time the period of retention of men sent to your camp for discharge. During periods when the men sent for discharge are not sufficient to keep the measurers busy, men belonging to permanent camp organizations should be sent for measurement. During rush periods when daily discharges exceed the quota which can be measured per day, the excess will not be detained solely for the purpose of being measured.

7. No emergency man, who could otherwise be spared from camp organizations and discharged, will be retained due to the work of the measuring board.

(*b*) *Instructions issued by Surgeon General.*—On the following days additional instructions and memoranda were issued by the Surgeon General:

JULY 24, 1919.

Subject: Measurement for sizes of clothing.

1. The Surgeon General has received the following instructions from the Secretary of War in a letter dated June 25, 1919:

You are directed to have measurements of 100,000 men made. When measured, men should be naked, except for breechcloth, and should have had at least four months of military training. Measurements should be taken as follows:

Zone 1, 6,000; zone 2, 24,000; zone 4, 3,500; zone 5, 10,500; zone 7, 26,000; zone 8, 10,500; zone 9, 3,500; zone 10, 4,000; zone 11, 4,500; zone 12, 1,500; zone 13, 6,000.

When men about to be demobilized are measured the taking of the measurements shall not be permitted to interfere in any way with demobilization. The personnel used in taking these measurements should receive such uniform instructions as will insure correctness and uniformity in data.

2. Authority has been obtained for the employment of a group of expert anthropologists to undertake this work in the various camps under the general direction of Dr. Charles B. Davenport, now employed in this office. This personnel has already been selected and is now being given instructions by Dr. Davenport relative to methods and procedure in taking measurements in camp. Blank forms have been printed and the necessary apparatus accumulated, and it is proposed to begin this work within the next few days. Necessary instructions have been sent to the commanding general of camps in which measurements are to be made. Your camp has been designated for the measurement of .... men.

3. As the Surgeon General is charged with carrying out this work, it is desired that the post surgeon act as his representative in camp and give the necessary support and cooperation to the expert anthropologist in immediate charge of the work. As the anthropologist is a civilian and unfamiliar with Army procedure, he will need assistance and guidance from you in order to accomplish successfully his task. The time element is important, as these men are employed under special authority under a limited allotment of funds, and the work in each camp must be pushed with all possible expedition, in order to bring it to a conclusion with our present allotment. It is desired that the post surgeon assume the administrative responsibility for the expeditious handling of the work. The responsibility for the technical features of the work will rest on the expert anthropologist.

(*c*) *Daily reports.*—On July 25 a letter of instructions was issued relative to the subject and daily reports by telegraph from the anthropologists were called for. From the daily telegraphic reports a table was made up showing the progress of the work day by day.

2. SUPERVISING PERSONNEL AND CAMPS WHERE MEASUREMENTS WERE TAKEN.

(*a*) *Supervising personnel.*—Personnel to take charge of the measurements at camps had to be assembled and given instruction, and this was accompanied with some difficulties, owing to the fact that most anthropologists had scattered to their summer homes or were working in the West among Indians under the United States Bureau of Ethnology. Eventually the services of the following anthropologists, anatomists, and Army officers were secured to supervise the taking of the measurements at the designated camps. When two or more are named for one camp, the first in order was chiefly responsible for the work. The one or two others were assistants or continued the work after it was well organized:

Dr. Chas. H. Danforth, associate professor of anatomy, Washington University, St. Louis, Mo. Camp Dix, N. J.

Mr. Frank J. Kelley, biologist, United States Department of Agriculture. Camp Dix, N. J.

First Lieut. Samuel H. Miller, Medical Corps. Camp Dix, N. J.

Mr. Geo. A. Miller, assistant anthropologist, National Museum. Camp Dix, N. J.

Dr. Geo. G. MacCurdy, professor of anthropology, Yale University. Camp Devens, Mass.

Second Lieut. W. B. Davis, Thirty-sixth Infantry. Camp Devens, Mass.

Dr. Robert B. Bean, professor of anatomy, University of Virginia. Camp Lee, Va., and Camp Gordon, Ga.

Dr. E. A. Hooton, instructor in anthropology, Harvard University. Camp Grant, Ill.

Dr. J. A. Mason, anthropologist, Field Museum of Natural History, Chicago. Camp Dodge, Iowa. and Fort D. A. Russell, Wyo.

Capt. Fred. P. Nevius, Medical Corps. Fort D. A. Russell, Wyo.

Dr. J. R. Terry, professor of anatomy, Medical School, Washington University, St. Louis, Mo. Camp Sherman, Ohio, and Camp Taylor, Ky.

Maj. Chas. P. Martin, Medical Corps. Camp Sherman, Ohio.

Maj. R. C. Chitting, Medical Corps. Camp Taylor, Ky.

Dr. Daniel Folkmar, anthropologist and statistician, Washington, D. C. Fort D. A. Russell, Wyo., and Camp Lewis, Wash.

Dr. Wm. Howard Griffith, assistant in physical education, University of Pennsylvania. Camp Pike, Ark.

Maj. R. D. Milner, Sanitary Corps. Camp Shelby, Miss., and Camps Travis and Bliss, Tex.

Maj. Samuel Clifford Cox, Medical Corps. Camp Meade, Md., and Camp Holabird, Md.

Capt. Richard M. Alley, Sanitary Corps. Camp Meade, Md.

Capt. Phil. Russell Pope. Camp Shelby, Miss.

To secure uniformity in the measurements taken, the anthropologists, anatomists, and officers who were to be in charge were ordered to Washington, D. C., for special instructions. The offer of Dr. Hrdlicka, curator, Division of Antrhopology, United States National Museum, Washington, D. C., to instruct them was accepted. Models were furnished by the Adjutant, Army Medical School, and to each anthropologist, singly or in groups, as the case might be, instructions were given in the prescribed measurements and in the method of taking them. Dr. Hrdlicka also consented to assist as an inspector of the work that was being done in some of the camps. He was consequently appointed on temporary duty in August, 1919, to visit Camp Dix and Camp Devens and to give any assistance that might be possible and to further make a report of the conditions as he found them in those camps.

(*b*) *Camps, number of men measured.*—The following number of men were measured at the various camps:

Camp Bliss	1,509	Camp Meade	6,001
Camp Devens	6,111	Camp Pike	10,500
Camp Dix	24,040	Camp D. A. Russell	136
Camp Dodge	5,046	Camp Shelby	3,504
Camp Gordon	9,724	Camp Sherman	6,981
Camp Grant	8,500	Camp Taylor	7,014
Camp Holabird	1,505	Camp Travis	6,005
Camp Lee	3,508		
Camp Lewis	3,825	Total	103,909

3. APPARATUS USED.

It was decided to use the following apparatus:

1. The Seaver measuring rod: Wooden sliding calipers having a 3-foot rod metrically divided, as made by the Narragansett Machine Company.

2. The cloth tape, metrically graduated, made by the same company: These tapes wore out rapidly and had to be replaced. The graduation marks became rapidly obliterated on that part of the tape held by the fingers. For a time steel tapes were used but these occasionally cut the skin and frequently broke if kinked, so that experience proved they were inferior to the cloth tapes. In practice a single tape proved to be good for the measurement of only about 500 men.

3. Graduated paper metric scales furnished by the United States Bureau of Standards: These paper scales were less accurate than metal scales, being subject to alteration in length according to the amount of moisture in the air. Wooden scales would have been better and these were sometimes ruled on the studding of the building by the anthropologist in charge.

4. A plumb line and sinker to measure height of sternal notch from floor, subject standing. Instructions were to use a horizontal arm at the notch from which the line would depend; a pencil or a "tongue depressor" was employed.

4. DIRECTIONS FOR TAKING AND RECORDING MEASUREMENTS.

The following directions for general arrangements at camps for taking measurements, and for recording descriptive matter on the forms that were prepared were issued to the anthropologists in charge:

DIRECTIONS FOR TAKING MEASUREMENTS.

(*a*) *Stature* (*W.*).—Each soldier is to stand against a wall upon which the metric scale has been fastened, accurately calibrated from the floor. The subject stands, heels together and in contact with the wall by buttocks and shoulders, and head in the "front" position, looking straight forward. The squared block is to be placed vertically in contact both with the scale and with the vertex of the head until the resistance of the skull is felt. Standing on the subject's left side, read from the under side of the block while subject is still standing in position.

(*b*) *Span* (*W.*) is to be taken standing, the subject touching a fixed strip with the longest finger tip of one hand and reaching out over a graduated scale with the finger tip of the opposite hand, stretching to a maximum. The thumb nail of the operator may be placed in contact with the movable finger tip of the hand which lies upon the scale and the scale read from the maximum position of the thumb nail of the operator.

(*c*) *Height sitting* (*W.*).—A strong box or bench, with a perfectly flat top, is to be placed in contact with the wall, underneath the metric scale on which is to be measured the height of the vertex. The position of the scale should be carefully calibrated, the zero point being at the level of the top of the box. The subject should sit with the buttocks, shoulder, and head in contact with the wall, unless contact of the head should require the soldier to look upward.

(*d*) *Height of knee joint* (*C.*).—While subject is sitting, with *under* side of movable arm of sliding calipers get height of top of patella from floor.

(*e*) *Height of sternal notch* (*L.*).—This is to be secured by dropping the plumb line and sinker from a short strip of wood ("tongue depressor") held horizontally, subject standing. The plumb line should be held fast by the thumb when the sinker touches the floor and the length of the line plus sinker are to be measured on the scale attached to the wall. The purpose of the horizontal arm is to bring the plumb line in front of the protuberance, if any, of the stomach. The measurement should give the vertical distance of the bottom of the depression of the sternal notch above the floor on which the subject is standing.

(*f*) *Height of pubis* (*C.*).—Use wooden sliding calipers. Standing in front of subject, bring top of sliding arm to level of superior border of the pubis at symphysis. The rod is to be kept horizontal.

(*g*) *Transverse diameter of shoulders at level of heads of humeri* (*C.*).—Use sliding calipers. These are to be in contact horizontally with the skin over the heads of the humeri, the arms of the subject being held at the sides of the body in the attitude of attention. The skin is to be compressed only sufficiently to permit the arms of the calipers to be brought in full contact with the skin, immediately over the head of the humerus. As the contour of the arm at this point is usually not directly vertical, there will be something of a compression of the skin at the lower edge of the arm of the calipers.

(*h*) *Transverse diameter of pelvis at level of the crests of ilium* (*C.*).—The calipers, held horizontally, are to be placed in contact with and pressing upon the skin over the widest part of the ilium, until bone resistance is felt.

(*i*) *Transverse diameter of chest at level of nipples* (*C.*).—The subject stands erect with arms slightly raised in a relaxed position. One arm of the sliding calipers is held fixed against the chest at the level of the nipples. The rod is applied to the chest in front. The movable arm is adjusted by the thumb until brought into contact with the wall of the chest. A series of contacts is made and a mental note made of the readings. This is to allow for changes in form of the chest during respiration. The middle position of the readings is to be recorded. The arms of the calipers will be held somewhat oblique, perpendicular to the axis of the trunk at this level.

(*j*) *Anterio-posterior diameter of chest* (*C.*).—The subject stands in the same position as in (*i*). The fixed arm of the calipers is applied to the front of the chest at the level of the nipples, the plane of measurement is perpendicular to the axis of the trunk, the movable arm of the calipers is brought in contact with the back or vertebræ. The movable arm of the calipers is brought repeatedly in contact with the back at different phases of inspiration and expiration. The median position of the movable arm in these contacts is recorded.

(*k*) *Second dorsal vertebra to styloid process of right ulna* (*T.*).—Stand behind and to the right of the subject, whose right humerus is raised to a horizontal position; forearm flexed, extending forward at right angles to the humerus. Measure with the tape from the spinous process on the same level with the humerus, along the length of the arm and forearm to the apex of the styloid process of ulna.

(*l*) *Circumference of neck, level of laryngeal prominence* (*T.*).—This measurement is made with the tape from the front. Feel the apex of the laryngeal prominence and pass the tape from the back of the neck slightly down around this prominence perpendicular to the axis of the neck. In measuring with the tape. hold the zero end with the fingers of the left hand in contact with the skin and hold the movable part of the tape with the right hand, guiding that part which comes in contact with the zero end of the tape by means of the forefinger of the right hand. In case of the measurement of a circumference which, like that of the chest, undergoes changes with respiration, read the maximum and minimum and take a strictly intermediate dimension for record.

(*m*) *Circumference of chest, level of nipples* (*T.*).—Arms in the position of (*i*). The tape is to be placed around the chest and gradually by sliding movements depressed to the required position, which is perpendicular to the axis of the trunk. Make the reading from in front, the tape passing over the nipples.

(*n*) *Circumference of waist, level of umbilicus* (*T.*).—The tape is held in a nearly horizontal position at what is, in "spare" persons, the minimum circumference of the trunk. Read as before.

(*o*) *Circumference of thigh, maximum* (*T.*).—The measurer kneels at the right side of the subject. The tape is placed around the upper portion of the thigh and passed slowly upward by sliding movements until it reaches the level of the gluteal fold. Legs of the subject slightly spread.

(*p*) *Circumference of leg just above patella* (*T.*).—The tape is to be passed around the leg and held horizontally, being brought to the desired position, just above the patella.

(*q*) *Circumference of knee, level of patella* (*T.*).—The tape is to be placed horizontally around the leg and at the middle of the patella in front.

(*r*) *Circumference of leg just below level of tuberosity of tibia* (*T.*).—The tape is to be brought into the horizontal position, as before, just below the tuberosity of the tibia which lies in the median position in front.

(*s*) *Circumference of calf, maximum* (*T.*).—The tape is to be brought into a position slightly above the thickest part of the calf, then gradually worked down the leg with repeated readings until the maximum circumference is determined. This is recorded.

(*t*) *Inside length of leg from the gluteal fold to tip of internal malleolus of tibia* (*T.*).—This is to be measured by the tape from the gluteal fold downward to the apex of the internal malleolus.

(*u*) The weight of all soldiers measured should be recorded.

In general: Measurements are to be taken so that tape is in close contact with the skin without indenting or depressing it.

Abbreviations: (C.), Calipers; (L.), line and sinker; (T.), tape; (W.), wall.

5. DIRECTIONS FOR USE OF RECORD ON "DESCRIPTIVE" FACE OF FORM.

Write legibly; surname to be printed with pen in capital letters.

1. Under "color," check appropriate square. Judge fraction of Negro blood by estimate of skin color. The mulatto is ½ black, clear brown or dark *café au lait*. If skin color is darker than clear brown, mark ¾ black; if light brownish yellow or lighter (and clearly of African descent), mark ¼ black. In case of a person of probable Indian, Chinese, or Japanese descent, ask: "Of what race?"

(*a*) *Hair color.*—There are two series—not-red and red. The not-red series is of four grades. Distinguish clear red and red more or less concealed by brown.

(*b*) *Eye color.*—Soldier should face light. If no brown pigment on iris, check "clear blue." If some brown pigment but blue field not covered, check "blue with brown spots." If whole iris covered with brown check light, medium, and dark according to degree.

6. SPECIFICATIONS FOR ARRANGEMENTS REQUIRED AT CAMP AND FOR TAKING MEASUREMENTS THERE.

In the building where the physical examinations are taken have erected at the corner of the building nearest the end of the examination line a sufficient number of vertical partitions running perpendicular to the long side of the building to permit of the simultaneous measurement of the number of men specified for each camp. Thus, for the maximum number of 12 sets of apparatus, permitting of the measurement of 12 men simultaneously, there will be required 12 wall spaces at least 6 feet 6 inches wide. These can be secured by using the short end of the room for the measurement of two men and by erecting five additional partitions parallel to the short end of the room against each of which can be measured two men by using the two sides of the partition. The partitions should be not less than 5 feet apart. Adequate lighting by electricity or otherwise is essential and must be secured.

Each partition is to have at the extreme edge a vertical strip of wood about 1 inch wide and ½ inch thick, extending from between 3 and 6 feet from the floor. Midway in the partition are to be affixed to the partition the metric ruled strips or scales provided in the set of apparatus. The scale is printed in 50-centimeter strips. Place two strips vertically, one immediately above the other, the bottom of the lowest strip being precisely 100 centimeters above the floor and the top of the uppermost strip 200 centimeters above the floor. Place two of the 50-centimeter scales in a horizontal position one above the other, so that the ends of the scales nearest to the vertical strip of wood, described above, shall be 150 centimeters therefrom. The bottom of the lower scale is to be 125 centimeters from the floor and the top of the upper scale is to be 165 centimeters from the floor. On the wall rule vertical lines a centimeter apart, connecting these two scales.

Secure a stout box about 50 centimeters high, 50 centimeters long, and 30 centimeters wide, upon which the subject will sit in measuring sitting height. A specially made bench is to be preferred to a box if such can be made by the camp carpenter. This bench is to be placed at one side of the middle of the partition wall. Immediately over the middle line of the bench is to be affixed to the wall in a strictly vertical position a 50-centimeter section of the scale. The bottom of this scale to be exactly 60 centimeters above the upper surface of the box or bench. The zero end of the scale should then be changed to 60 centimeters; the 10-centimeter mark to 70 centimeters, and so on, the upper limit of the scale then reading 110 centimeters in place of 50 centimeters.

A recorder for each measurer should be seated at a desk in the interspace between every two partitions, or any other convenient position, to record the measurements called off to him by the measurer.

The details of the arrangements of partitions and the direction of passage of the examination line will have to be adjusted to meet the conditions found at the different examination rooms.

Omission of measurements.—The weight was omitted at Camp Gordon, Camp Lee, and Camp Devens. The knee height was omitted at Camp Devens, Camp Sherman, and Camp Taylor. The measurement from the styloid process of the ulna to the elbow was omitted from Camp Sherman and Camp Taylor.

7. STATISTICAL TREATMENT OF DATA.

(a) *System used.*—The taking of the measurements was completed in October, 1919. The data were then transferred to Hollerith punch cards by the use of a prearranged code. This coding and the subsequent handling of the data was all done in the Medical Record Section of the Surgeon General's Office.

(b) *Nationality.*—To determine the nationality of the soldiers measured the following rules were observed:

1. The nationality of all, except Hebrews, who were born in a foreign country, were credited to that country. Hebrews were counted as such without regard to country of birth.

2. Where neither parent was born in the United States, and both were born in the same foreign country, the soldier's nationality was credited to that country; if both parents were not born in the same foreign country the soldier was entered as of mixed origin.

3. If the soldier and both parents were born in the United States, but if three or four grandparents were born in the same foreign country, the soldier's nationality was credited to that country. If three grandparents were not born in the same foreign country, the soldier was classified as of mixed origin.

4. If only one parent was born in the United States and three or four grandparents were born in the same foreign country, the soldier was counted as of that country; otherwise as of mixed origin.

5. When the data furnished were insufficient to determine the nationality, the name was used to determine it, provided the evidence was sufficiently clear.

6. To further determine the nationality the religion was used in such countries as Ireland, where the races are mixed. For example, where both parents were born in Ireland and of the Catholic religion, the nationality was credited to the Irish, but where they were both born in Ireland and of the Protestant religion, the nationality was credited to the Scotch.

Provisions were also made for determining mixed nationalities, but it was decided that it was not advisable to attempt to tabulate statistics for the mixed races.

MEASUREMENT CARD FOR CLOTHING PATTERNS
DEMOBILIZATION–1919

Name John Doe Army Serial No. 278659 Home State New York

Organization Hdqrs Co., 313 Infantry Age 22 Color (Check in squares.) White ☒ ½ black ☐ ¼ black ☐ Negro ☐ ¾ black ☐ Indian ☐ Chinese ☐ Japanese ☐ Other (Name) ☐

Place of observation Camp Dix Date of observation Sept. 10, 1918 Initials of officer in charge A.M.S.

Place of birth of—	Country.	State or Province.	City or Town.
Self	United States	New York	New York City
Father	United States	New York	New York City
Mother	United States	New York	New York City

Nationality of father's father American Nationality of mother's father American

Nationality of father's mother American Nationality of mother's mother American

Native language of mother English

Religion of father Protestant

Hair, color (Check in squares.) Flaxen ☐ Dark brown ☒ Light brown ☐ Clear red ☐ Medium brown ☐ Red and black ☐

Other noteworthy racial traits

Eye, color (Check in squares.) Clear blue ☐ Light brown ☐ Blue with brown spots ☐ Dark brown ☒

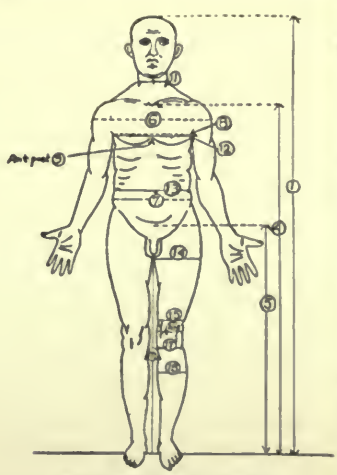
MEASUREMENT CARD FOR CLOTHING PATTERNS

MEASUREMENTS—ALL METRIC

0. Weight	145.0
1. Height, standing (stature)	160.1
2. Span (maximum, between finger and tips of outstretched arms)	161.0
3. Height, sitting	86.0
4. Height of sternal notch	132.0
5. Height of pubis	76.8
6. Transverse diam. of shoulders at level of head of humeri	42.7
7. Transverse diam. of hips, level of crests of ilia	29.8
8. Transverse diam. of chest at level of nipples, arms elevated and flexed	28.8
9. Ant.-post. diam. chest; level of nipples	21.0
10. Second dorsal vertebra to styloid process of ulna (elbow bent, horizontal)	68.0
11. Circumference of neck, level of laryngeal prominence, perpendicular to axis of neck	38.0
12. Circumference of chest, level of nipples	88.7
13. Circumference of waist, level of umbilicus	83.0
14. Circumference of thigh (maximum)	55.2
15. Circumference of leg, just above patella	37.0
16. Circumference of knee, level of patella	35.0
17. Circumference of leg, just below level of tuberosity of tibia	31.9
18. Circumference of calf (maximum)	34.7
19. Inside length of leg, from gluteal fold to tip of internal malleolus of tibia	64.0
20. Size of shoe worn if fitted since July 15, 1919, under par. 14, S. R. 28	8-C

Number of measurer 6

21. Height of knee	43.4
22. Length of forearm	23.0



DOTTED LINES INDICATE DIAMETERS
FULL LINES INDICATE CIRCUMFERENCES
NOS. 2, 3, AND 10 NOT SHOWN ON FIGURE

PLATE II.

Statistics were tabulated for the following nationalities, which were determined as follows:

Irish.—Soldier, both parents, or three or four of the grandparents, all of Catholic religion, born in Ireland. If the data are not clear as to nationality, if the name begins with Mc or O', and if the mother's language is English and the religion is Catholic, he is classified as Irish.

Italian.—Soldier, both parents, or three or four of the grandparents born in any part of Italy other than the northern provinces. If the data are not clear, and if the name ends in a vowel (not Irish or French), with the religion Catholic, classify as Italian.

Hebrews.—All soldiers included in this race were of Jewish or Hebrew religion, whether born in this country or in any of the foreign countries.

English.—All soldiers were classified as English whenever either they, both of their parents, or three or four of their grandparents were born in England, Canada (French Canada excepted), Australia, or New Zealand.

Scotch.—All soldiers were classified as Scotch whenever either they, both of their parents, or three or four of their grandparents were born in Scotland or in Ireland and were of the Protestant religion.

German.—All soldiers were classified as Germans whenever they, both of their parents, or three or four of their grandparents were born in either of the following countries: Germany and Switzerland (mother's language German).

French.—Soldiers were classified as French where either they, both parents, or three or four of their grandparents were born in any of the following countries: France, Switzerland (mother's language French, and religion Catholic), and French Canada (Quebec, Catholic).

Polish.—Soldiers were classified as Polish whenever either they, both of their parents, or three or four of their grandparents were born in Poland (Hebrews excepted).

STATISTICAL PERFORATED CARDS

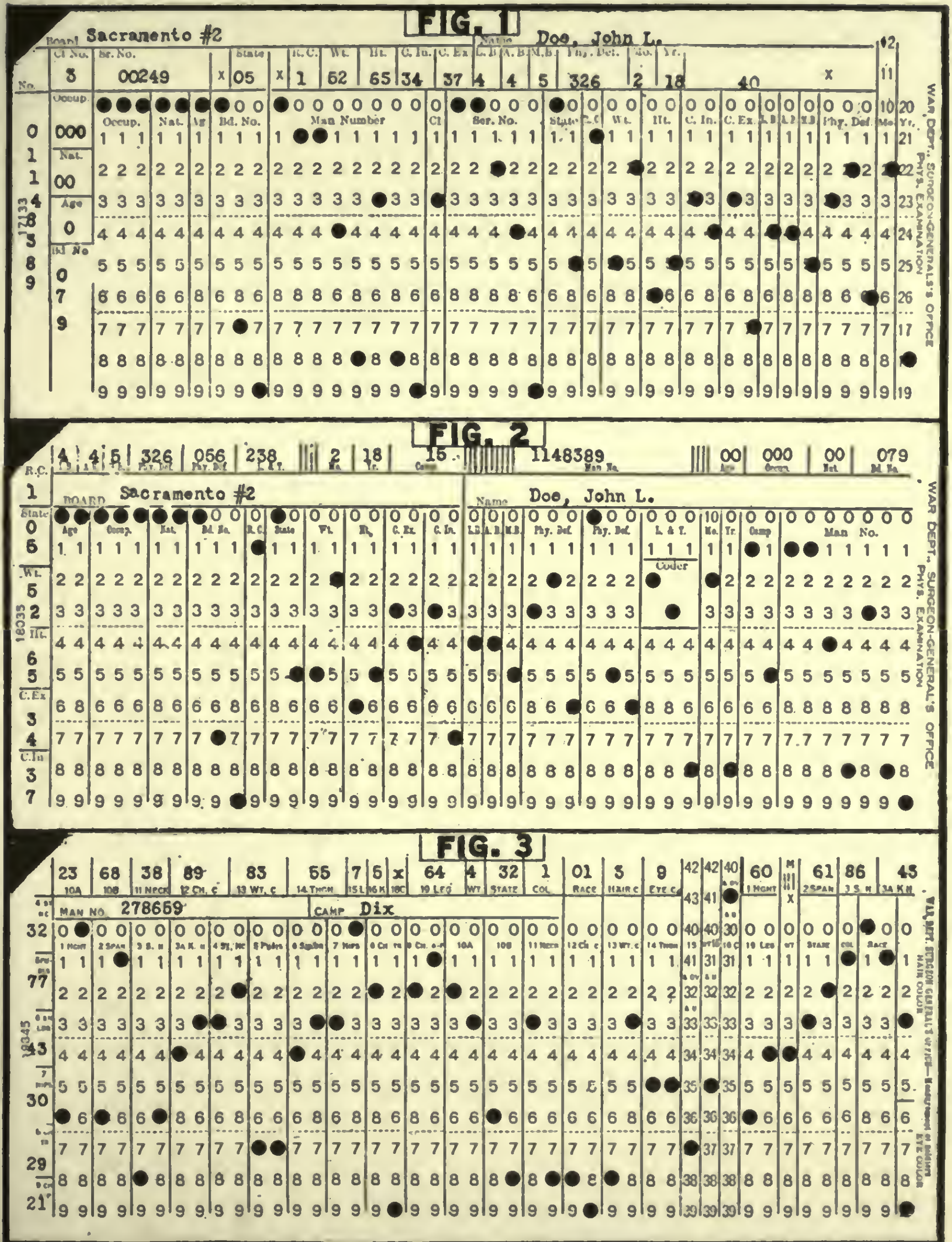


PLATE III.

FIG. 1. Statistical card used for tabulating the statistics of the first million draft recruits (P_1).
FIG. 2. The same for the second million draft recruits (P_2).
Fig. 3. The same for the special measurements of one hundred thousand veterans, 1919.

C. RESULTS OF THE STANDARD ARMY PHYSICAL MEASUREMENTS.

I. AGE OF RECRUITS.

Table 2, prepared from material published in Gould [2] and from material furnished by the War Risk Bureau, gives the relative frequency of the various ages of officers and men serving in the Civil and World Wars. It is apparent that the great majority of the men measured for the data in this book were between the ages of 18 and 31, inclusive. (See Plate IV.)

TABLE 2.—*Ages of soldiers (officers and men) serving in the Civil [a] and World Wars.[b]*

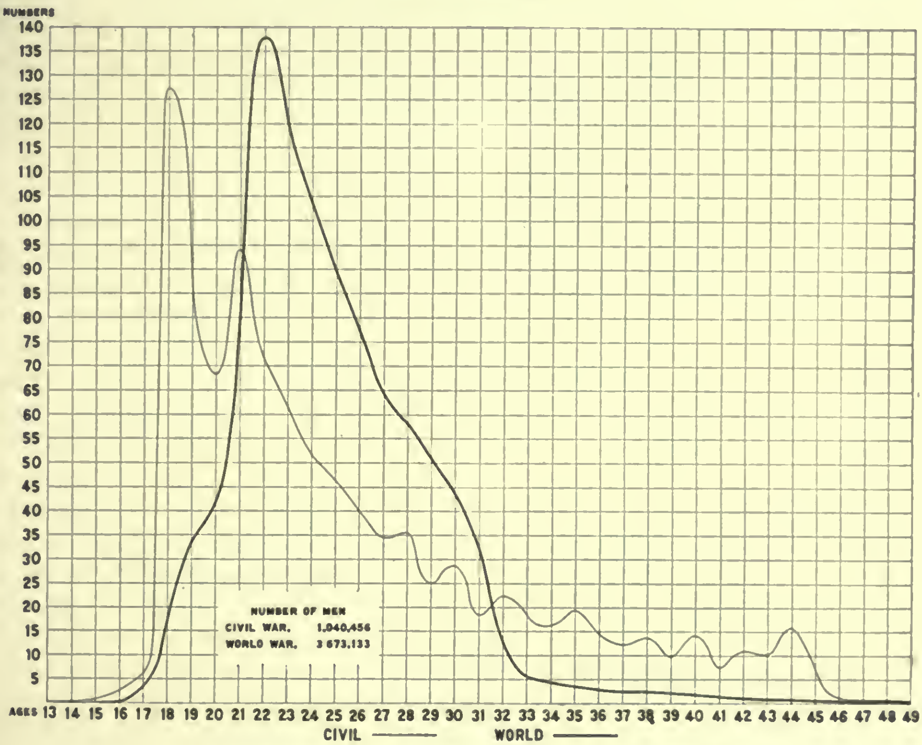
Age.	Civil War.		World War.	
	Number.	Proportion per 1,000.	Number.	Proportion per 1,000.
13	127	0.12	....	....
14	330	.31	16	0.00
15	774	.74	140	.04
16	2,763	2.63	935	.25
17	6,430	6.13	12,846	3.50
18	133,653	127.35	62,849	17.11
19	90,624	86.36	122,977	33.48
20	71,745	68.36	152,635	41.56
21	98,766	94.11	293,161	79.81
22	75,230	71.69	506,426	137.87
23	64,818	61.76	440,581	119.94
24	54,329	51.76	381,321	103.81
25	48,787	46.49	328,185	89.34
26	42,357	40.36	283,276	77.11
27	36,254	34.55	235,904	64.22
28	37,383	35.62	214,133	58.30
29	26,269	25.03	187,040	50.91
30	30,196	28.78	160,735	43.76
31	19,383	18.47	117,316	31.94
32	23,580	22.47	47,890	13.04
33	19,401	18.49	20,967	5.71
34	17,064	16.26	16,407	4.47
35	20,414	19.45	13,318	3.63
36	15,278	14.56	10,992	2.99
37	12,851	12.25	9,356	2.55
38	14,379	13.70	9,086	2.47
39	10,409	9.92	8,039	2.19
40	14,869	14.17	6,747	1.84
41	7,992	7.62	5,165	1.41
42	11,585	11.04	4,067	1.11
43	10,825	10.32	3,438	.94
44	16,668	15.88	3,077	.84
45	7,490	7.14	2,560	.70
46	1,184	1.13	2,050	.56
47	896	.85	1,680	.46
48	874	.83	1,543	.42
49	590	.56	1,237	.34
50 and over	2,889	2.75	5,038	1.37
Total	1,049,456	1,000.01	3,673,133	999.99

Average age, Civil War, Gould's figures, 25.54, volunteer officers and enlisted men.
Average age, Civil War, Baxter's figures, 27.307 (Baxter, p. 51), drafted recruits, substitutes, and late volunteers.
Average age, World War, 24.89 for all officers and enlisted men. Other data in this study for draft, enlisted men only.
[a] Gould, 1869, pp. 34 and 57.
[b] Estimated from ages furnished by 3,683,134 applicants for War Risk Insurance.

AGE DISTRIBUTION CIVIL WAR VOLS., AND WORLD WAR TROOPS.

OFFICERS AND ENLISTED MEN

RATIOS PER 1000



AVERAGE AGE, CIVIL AND WORLD WAR

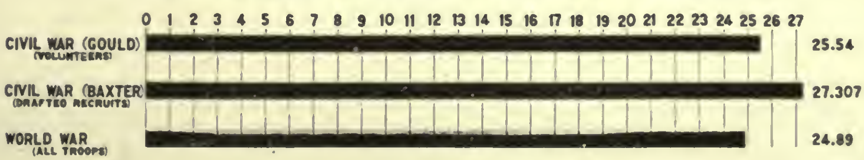


PLATE IV.

Gould stated that apparently many who were under 18 or 21 gave their ages as such that they might be able to enlist at the minimum age of 18 (with consent) or at the minimum legal age of 21.

Baxter's drafted recruits included all troops raised during the draft period, that is draftees, substitutes, and late volunteers.

II. STATURE.

1. GENERAL DISCUSSION.

The distance from the sole of the foot to the vertex of the head is one of the most striking of human dimensions and one of the most easily secured. It is used in anthropology as the basal dimension with which minor dimensions are compared in forming the so-called *relative* lengths. Such relative lengths are obtained by dividing the minor dimensions by the stature.

Despite its striking nature, the ease of taking it and its universal use (often as standard of comparison), stature is not altogether satisfactory as a fundamental dimension. The principal objection to it is that it is a complex of dimensions of varied significance, the length of the trunk (in many ways the most significant single measure, but difficult to take), the length of the neck, the height of the head, and the length of the inferior (posterior) appendages of the trunk. Actually, the dimensions of the trunk and legs overlap. In many ways the best standard for human dimensions would be the distance of the sternal notch from the buttocks, that is, the sitting height of the sternal notch. This may readily be taken. The *relative* dimensions of this paper, however, will have for their basis the total stature.

The military reason for laying much stress on stature lies partly in its convenience as a fundamental measure and partly in military history. The potentates of Europe from early time prided themselves on their tall soldiers; they rejected the poorly developed as fit only to stay at home to cultivate the land and to reproduce their kind. It is customary, also, in many army formations to keep together men of about the same height, partly to enable the ranks to keep step better. The latter purpose is imperfectly met, in so far as keeping step depends rather upon similarity of leg length than of total stature; and the two dimensions are not very closely correlated. The military importance of stature is emphasized by the fact that total stature of recruits is taken at practically all recruit stations in all countries. Thus, armies may be compared in respect to average height of their soldiers. Differences in sizes of men of military age between various countries may be quantitatively expressed.

Stature is of great medico-military importance, as it is the basis by which may be judged the build or robustness of the man. Experience has shown that a certain chest circumference and a certain weight are essential for the successful soldier. These measurements are, however, to be judged in relation to stature and not absolutely. This will appear directly in the section relating to the standards of height, weight, and chest circumference. The importance of stature in relation to weight and chest circumference depends on the fact that it gives a warning for tuberculosis, hook-worm, and other diseases.

The method of measuring stature is a simple one. There is affixed to the wall a bit of metric (or English) scale, preferably of wood and accurately calibrated so that it records the vertical distance from the floor. For military purposes the range of the scale need be only from 150 to 200 centimeters, or 59 to 79 inches. To measure, the subject's shoes must be removed and the subject made to stand with his back to the wall at the point of the scale. For a vertical arm, by which the height of the vertex is secured, one can not do better than to follow the directions given in the Standards of Physical Examination of the P. M. G. O., Form 75 (second edition), page 79, which read as follows:

Directions for taking height.—Use a board at least 2 inches wide by 80 inches long, placed vertically, and carefully graduated to one-quarter inch between 58 inches from the floor and the top end. Obtain the height by placing vertically in firm contact with the top of the head and against the measuring rod an accurately squared board of about 6 by 6 by 2 inches, best permanently attached to graduated board by a long cord. The registrant should stand erect with back to the graduated board, eyes straight to the front.

It remains only to state that the subject should be cautioned to stand in the "front" position, heels close together, buttocks (and shoulders) in contact with the wall.

2. MEAN STATURE.

The mean stature of the 868,445 recruits of whom the weight was also secured is, as shown in Table 11 (based on Table I), 67.49 inches, or 171.4 centimeters. The mean, in English units, is easily remembered as very near to 67½ inches, or 5 feet 7½ inches; also the metric height is almost exactly $1\frac{7}{10}$ meters. This number is probably close to the average for the entire male population of the ages of 21 to 30 years, inclusive, since the 873,000 men were drawn from all States of the Union in about the proportion of the population and without any obvious selection. It includes thus a great mixture of races whose height is known to be very variable.

The mean stature of 102,304 men, measured at demobilization and including both white and colored, is 67.72 inches, or 1,720 millimeters (Table 14 based on Table CXXXIII). This shows an increase in mean stature of men measured at demobilization over men measured at draft of 0.23 inch, or 6 millimeters. The increase in stature may possibly be due in part to the fact that the men at demobilization averaged more than a year older than at mobilization; in part that they were straighter, in part that some of the shortest divisions were not included in the measurements made at demobilization, and in part that some of the shorter men were excluded at the mobilization examination and hence not included in the demobilization measurements.

3. COMPARISON OF MEAN STATURE WITH CIVIL WAR RECORDS.

This mean stature of 67.49 inches may be compared with the statures obtained from recruits during the Civil War as given by Baxter[1] and Gould.[2] The average stature given by Baxter (Vol. I, p. 23) for 501,068 recruits of all nationalities measured by the Provost Marshal General's Bureau of Civil War times is 67.30 inches (1,709 millimeters). This is an average of stature obtained probably by the same method as that employed in measuring the drafted men of 1917–1918. Our measurements show an increase of 5 millimeters over the Civil War data. Our data alone exclude men rejected by the State or local boards. There was no minimum height for the Civil War draft, it being stated that no exemptions should be made on account of stature (Baxter, Vol. I, p. 22); at the beginning of the draft in 1917 it was 61 inches. In the Civil War draft the manhood of the Northern States had been much depleted by volunteer enlistment prior to the draft. For Gould's (p. 105) data for 1,104,841 white volunteer soldiers, probably very crudely measured and recorded at the beginning of the Civil War, when the minimum height of 63 inches was prescribed but probably not adhered to, the average height was 67.64, or 171.8 centimeters. This is 0.15 inch greater than our average, which was in turn 0.19 inch greater than Baxter's average. The weighted average for the two groups combined was 67.502 inches, practically the same as our own.

It might be concluded, then, that the mean stature of men of military age has changed little in the United States in the last 50 years, and that our population, so far as stature goes, is placed in the same category as the Scandinavians and below the English middle class. But this conclusion would be hasty. The men of 1917–1918 were taken from all parts of the United States, while those of 1864–1865 largely excluded the Southern States; and since the men of these States are exceptionally tall, their inclusion probably tends to raise the mean stature. A more careful consideration has shown that the mean stature of American males 21 to 30 years has probably diminished since Civil War days about one-half inch. This is chiefly the result of the immigrants during the past half century of short races.

4. COMPARISON OF MEAN STATURE IN VARIOUS COUNTRIES.

It may be instructive to compare the mean height of other countries with the 1,714 millimeters which constitutes the mean height of the young males of the United States (21 to 30 years of age). This average places the United States in the group of nations characterized by a high average stature. This average is almost the same as that of Scandinavian males, 1,710 millimeters. It is about 30 millimeters less than the average of Scotch, 1,746 millimeters, and about 80 millimeters less than the agricultural Scotch of Galway, who, according to Deniker [14] (p. 584), have an average stature of 1,792 millimeters. This average, however, is based on only 75 subjects, and thus may be influenced by accidental inclusion of a few exceptionally tall men. The following table gives the stature of various European races as listed by Martin [5] (pp. 213–217):

TABLE 3.—*Average statures of European males of various countries.*

Group.	Stature (millimeters).	Group.	Stature (millimeters).
Laplanders from Scandinavia	1,523	Turks from Balkans	1,660
Jews of Russian Poland	1,612	Venetians	1,666
Magyars from west Hungary (conscripts)	1,619	Finns	1,666
Corsicans	1,633	Thuringians of Saxony (conscripts)	1,667
Austrian Jews of Hungary	1,633	Ukrainians	1,669
Roumanians of Hungary	1,635	Dutch in general	1,675
Portuguese	1,637	Poles in general	1,679
Hungarians (conscripts)	1,637	Swedes of Kalmar (conscripts)	1,681
Bulgarians of western Bulgaria	1,638	Danes	1,691
Lithuanians of Russian Poland	1,639	Welsh	1,695
Italians in general	1,640	Swedes in general (soldiers)	1,705
French (conscripts) (Rapillault, 1902)	1,641	Serbs (conscripts)	1,709
Esthonians	1,642	Bosnian-Herzogovinians (soldiers)	1,710
Lithuanians of Lithuania (conscripts)	1,643	Inhabitants of United Kingdom of Great Britain and Ireland	1,719
Spaniards	1,645	Norwegians (soldiers)	1,720
Conscripts of French Switzerland	1,646	Laplanders	1,736
Roumanians (conscripts)	1,650	Scotch in general	1,746
South Russian Jews (Weissenberg, 1895)	1,651	Scotch of the north, Ayrshire, etc	1,786
Greeks	1,651	75 Scotch, agriculturists of Galway	1,792
White Russians	1,652		
Dutch of the Province of Zeeland (conscripts)	1,655		

TABLE 4.—*Stature, its mean, standard deviation, and coefficient of variation for men (and in part for women also) for certain especially studied groups (Harris and Benedict,[1] pp. 53-54).*

Series.	Men.			Women.		
	Mean.	Standard deviation.	Coefficient of variation.	Mean.	Standard deviation.	Coefficient of variation.
American:	*Centimeters*	*Centimeters.*	*Per cent.*	*Centimeters.*	*Centimeters.*	*Per cent.*
Harvard students	175.34	6.58	3.76	....	....	....
Army recruits	170.94	6.56	3.84	....	....	....
English:						
Oxford students	176.50	6.61	3.74	....	....	....
Cambridge students, Pearson	174.91	6.41	3.66	162.26	6.00	3.70
Cambridge students, MacDonell	174.88	6.46	3.70	....	....	....
Pearson's second generation	174.37	6.88	3.95	162.23	6.63	4.09
Pearson's family records	172.81	7.04	4.07	159.90	6.44	4.03
Pearson's parental generation	171.91	6.86	3.99	158.70	6.07	3.83
New South Wales criminals	169.87	6.58	3.87	158.09	6.15	3.89
Scottish students	171.70	5.94	3.46	....	....	....
MacDonell's convicts	166.46	6.45	3.88	....	....	....
Goring's convicts	166.29	6.76	4.06	....	....	....
Swedes	169.79	6.81	4.01	158.71	6.72	4.23
Hessians	167.36	7.19	4.30	156.18	6.90	4.40
French	166.80	6.47	3.88	156.10	6.79	4.35
Bavarians, Pearl	166.55	6.39	3.84	154.71	6.21	4.02
Bavarians, Pearson	165.93	6.68	4.02	163.85	6.55	4.26

TABLE 5.—*Average stature of adult males of various nativities in the United States in the Civil War period (from Baxter,[1] Vol. I, p. 32).*

Nativity.	Number of men.	Mean height.	
		Inches.	*Centimeters.*
United States, Indians	121	67.934	172.55
United States, whites	315,620	67.672	171.89
Norway	2,290	67.467	171.37
Scotland	3,476	67.066	170.35
British America	21,645	67.014	170.22
Sweden	1,190	66.896	169.92
Ireland	50,537	66.741	169.52
Denmark	383	66.648	169.29
Holland	989	66.637	169.26
Hungary	89	66.584	169.12
England	16,196	66.577	169.11
Germany	54,944	66.536	169.00
United States, colored	25,828	66.531	168.99
Wales	1,104	66.418	168.70
Russia	122	66.393	168.64
Switzerland	1,802	66.381	168.61
West Indies	580	66.307	168.42
France	3,243	66.277	168.34
Poland	171	66.211	168.18
Mexico	91	66.110	167.92
Italy	339	66.000	167.64
South America	79	65.899	167.38
Spain	148	65.635	166.71
Portugal	81	65.432	166.20
Total	501,068	....	....
Total frequency and mean of	....	67.300	170.94

TABLE 6.—*Frequency distribution of stature by classes at mobilization and demobilization (white and Negro troops), 1917–1919.*

A. First million draft recruits.[1]		B. 103,410 troops at demobilization.[2]		
Inches.	Per 1,000.	Centimeters.	Inches.	Per 1,000.
59	3.534	148–149	58.3–58.7	0.22
60	3.354	150–151	59.1–59.4	.55
61	8.672	152–153	59.8–60.2	1.47
62	18.150	154–155	60.6–61.0	3.88
63	35.740	156–157	61.4–61.8	7.41
64	60.611	158–159	62.2–62.5	14.27
65	94.400	160–161	63.0–63.4	27.51
66	126.914	162–163	63.8–64.2	44.04
67	146.927	164–165	64.6–65.0	65.27
68	149.599	166–167	66.4–65.7	85.09
69	127.265	168–169	66.1–66.5	103.63
70	96.065	170–171	66.9–67.3	120.25
71	62.542	172–173	67.7–68.1	119.27
72	36.102	174–175	68.5–68.9	112.33
73	17.504	176–177	69.3–69.7	94.80
74	7.342	178–179	70.1–70.5	74.49
75	3.001	180–181	70.9–71.3	49.72
76	1.237	182–183	71.7–72.0	32.01
77	0.413	184–185	72.4–72.8	19.65
78	0.293	186–187	73.2–73.6	11.75
79	0.341	188–189	74.0–74.4	6.67
		190–191	74.8–75.2	2.84
		192–193	75.6–76.0	1.54
		194–195	76.4–76.8	.57
		196–197	77.2–77.6	.38
		198–199	78.0–78.3	.22
		200–201	78.7–79.1	.06
		202–203	79.5–79.9	.02
		204–205	80.3–80.7	.11
		206–207	81.1–81.5	.00
		208–209	81.9–82.3	.00

[1] From Table I. [2] From Table LXXV.

TABLE 7.—*Stature of Army conscripts and recruits, in inches, as determined by Laplace-Charlier frequency curves (by Arne Fisher, from Hoffman,[16] p. 33).*

[Ratio per 1,000.]

Inches of stature.	United States Army recruits, 1906–1915.	Norwegian conscripts, 1913.	Swedish conscripts, 1914.	Danish conscripts, 1916.	Wurttemberg conscripts, 1911.	Japanese conscripts, 1916.
56						4.7
57						12.5
58						31.6
59			1.3	2.9	1.2	64.0
60			2.2	6.7	7.0	106.5
61		2.1	5.4	15.0	22.7	148.6
62	3.8	9.9	12.9	30.2	53.4	173.0
63	19.2	29.4	27.5	54.0	96.9	169.8
64	53.8	60.1	53.4	92.6	141.7	132.8
65	105.5	100.3	88.6	130.5	167.5	83.9
66	155.7	137.6	127.8	157.7	164.8	44.2
67	182.2	165.2	155.3	160.0	137.2	20.8
68	169.5	163.1	159.7	136.0	97.0	6.4
69	129.4	132.8	138.5	96.9	59.2	1.2
70	86.8	96.4	102.0	59.4	30.9	
71	51.0	58.9	63.4	31.7	13.6	
72	26.3	28.7	34.6	15.2	5.0	
73	11.4	11.3	16.4	6.7	1.5	
74	4.2	3.2	7.0	2.8	.3	
75	1.2	.5	2.7	1.1		
76		.3	1.3	.4		
77		.2		.2		

TABLE 8.—*Calculated frequency distributions of statures of men of United States Civil War period, France, Belgium, and Italy (Baxter,[1] Vol. I, p.* LXXXI, *and Livi,[17] Anthropometria Militare).*

[Ratio per 1,000.]

Stature. Centimeters.	Stature. Inches.	United States (B. A. Gould).	France (D'Hagenviliers).	Belgium (Quetelet).	Italy (Livi).
133	52.5			0.1	0.3
136	53.5		0.5	.3	.5
139	54.7		1.6	1	1
142	55.9		4.5	3	2
145	57.1		11	7	4
148	58.3	1	24	14	9
151	59.4	4	44	28	24
154	60.6	11	73	53	59
157	61.8	24	105	107	105
160	63.0	45	132	136	122
162	63.8	75	145	150	150
165	65.0	109	140	150	167
168	66.1	137	118	136	137
170	67.0	150	87	107	96
173	68.1	142	55	53	70
176	69.3	117	32	28	35
179	70.5	84	16	14	15
181	71.3	52	7	7	4
184	72.4	28	3	3	2
187	73.6	13	1	1	1
190	74.8	5	.3	.3	.2
192	75.6	2		.1	
194	76.4	1			
		1,000	1,000	1,000	1,000

5. FREQUENCY DISTRIBUTION.

While the mean is probably the best single measure of the stature of the country as a whole, still the relative frequency of the different statures (inches) will be highly instructive. This is shown in the second column of Table 6, which gives the proportion of drafted men of 1917–1918 of each stature from 59 inches (strictly, 59 inches and below) up to 79 inches (strictly, 79 inches and above). One sees that the statures below 62 inches are relatively uncommon; but this is in part due to the fact that, during a brief period of the draft, men with a stature below 63 inches were rejected, so that some such men were excluded. The sudden diminution of the number of men below 63 inches is thus in part due to a process of selective elimination of the short men. The effects of this selection are still more marked in the case of men 59 inches and under. No men of this stature were supposed to be accepted for military service. Their inclusion, therefore, is partly accidental, and partly due to the intentional acceptance, in spite of their short stature, of men of exceptionally good build. Instead of less than 4 men per 1,000 of our population being 59 inches or under, it is probable that the inclusion of all cases would give 10 per 1,000 or more.

As the distribution in Table 6 shows, the commonest stature at mobilization was 68 (67.5 to 68.4) inches—a stature found in about 15 per cent of our young men.[a] About 10 per cent measured 70 inches in height, less than 4 per cent 72 inches in height, and above that stature to that of 78 inches the proportional numbers fall rapidly.

[a] In Danish conscripts the mode is 67 inches, found in 160 per 1,000 men. For conscripts from Wurttemberg the modal stature is 65 inches, found in 168 per 1,000 men. For Japanese conscripts the mode is 62 inches, found in 173 per 1,000 men. (See Table 7.)

For comparison with Table 6 there are printed Tables 7 and 8, which give for various countries the findings as to frequency distribution of statures. The frequency distribution of stature of 103,410 men at demobilization is given in 2-centimeter classes in Table 6, extracted from Table LXXV. The total range in stature is from 148 to 209 centimeters and above. This tends to raise the class 208–209 above the class 206–207 centimeters, because the former class really has a much more inclusive range than the latter. The total range is from 58.3 to 82.3 inches. There are only seven cases above 200 centimeters, or 79 inches, and it is probable that some of these are due to errors in recording.

Table 7, taken from Hoffman [16] (p. 33), and Table 8 give the comparative distribution in statures of conscripts of different countries, Civil War volunteers, per 1,000. We note that for the United States Army recruits, 1906–1915, the commonest or modal height is 67 inches, a class that contained 182 per 1,000 men. For Norwegian conscripts the mode is also 67 inches, with 165 per 1,000 men. For Swedish conscripts the mode is 68 inches, found in about 160 per 1,000 men.

The accompanying Table 9 gives the direct comparison of the distribution of statures of recruits of 1917–1918 (Table I) with that of Civil War recruits as given by Baxter [1] (Vol. II, Table 3) for 501,068 Civil War draft recruits of all countries of origin.

TABLE 9.—*Comparison of frequency distribution of statures, United States recruits, Civil War and World War.*

Classes (inches).	Civil War.	1917–1918	Classes (inches).	Civil War.	1917–1918.
Under 61	7.478	6.923	67–68.9	288.683	296.882
61–62.9	41.587	26.624	69–70.9	177.205	223.630
63–64.9	141.773	96.127	71–72.9	64.488	98.714
65–66.9	263.611	220.932	73 and over	15.174	30.164

This table shows that there were slightly fewer (per mille) recruits under 61 inches chosen in 1917 than 1864. There were nearly twice as many men 73 inches and over chosen in the latter as in the earlier period, and 50 per cent more men of 71.3 inches. The great deficiency in the later series is in men of mediocre size, namely 63–66.9 inches. This, again, is in accordance with the history of immigration, since within the last 50 years the United States has experienced a great immigration of Scandinavians on the one hand and of south Italians and Polish Jews on the other. However, as pointed out above, the great excess of relatively tall men in the later series is due to the inclusion therein of many tall white men from the Southern States.

The data supplied by the draft boards gave no indication of age; therefore it is impossible to make comparison with the statistics of Gould,[2] in which the statures are carefully distributed by age of recruits. From Hoffman's[16] (p. 37) paper based on stature of the United States Army recruits, 1906–1915, it appears that the mean stature increases preceptibly up to 22 to 24 years and then diminishes at greater ages.

TABLE 10.—*Mean stature at each age, 18 to 25 years, United States Army recruits, 1906–1915 (Hoffman,[16] p. 37).*

Age.	Mean stature.	
	Inches.	Centimeters.
18	66.900	169.93
19	66.965	170.09
20	67.024	170.24
21	67.329	171.02
22	67.341	171.05
23	67.329	171.01
24	67.367	171.16
25 and over	67.325	171.01

6. STANDARD DEVIATION.

The standard deviation of stature for the first million recruits, 1917–1918, is 2.71 inches (6.88 centimeters). (See Table I.) The standard deviation of the English upper middle class, with a stature of 69.22 inches, is 2.59 inches, and for Cambridge University students, with 68.86 inches of stature, the standard deviation is 2.52 inches. Since variability is measured by standard deviation, and since it tends to increase with the mean, it is more usual to make comparison with the standard deviation divided by the mean, the so-called coefficient of variation. The coefficient of variation thus obtained is, for the United States recruits, 4.02 per cent; for the English middle class, 3.74; for Cambridge University students, 3.66. The relatively large size of the coefficient of variation for United States recruits signifies that the population is much more variable in stature than even the population of the English middle class. It is indeed about 8 per cent more variable. We can understand this high variability of the mean stature for the United States recruits in view of the heterogeneous composition of the population of the United States.

The standard deviation of 501,068 Civil War recruits, using Baxter's figures, (Vol, II, Table 3), is 2.664 ± 0.002. Of recruits of 1917–1918 the standard deviation of stature is 2.71 inches. Thus it appears that the standard deviation of the military population of the United States in 1917–1918 has increased slightly from that of 1865. Similarly the coefficient of variation has increased from 3.96 to 4.02. The difference is clearly to be explained by the inclusion in the 1917–1918 figures of many Scandinavians on the one hand and representatives of the south Italian and Jewish races on the other. It is also influenced by this inclusion of tall southern recruits in the later series.

The standard deviation of mean stature for white troops at demobilization is 6.66 centimeters (1.69 inches), with a probable error of ± 0.01; for Negro troops at demobilization, 6.91 ± 0.04 (1.76 inches). Negro soldiers are more variable than white.

TABLE 11.—*Distribution of stature and weight, draft recruits of 1917–1918.*

Classes of stature (inches).	Classes of weight (pounds).						
	Under 100	100–119	120–139	140–159	160–179	180 and over.	Total.
Under 61	0.038	2.021	2.627	1.611	0.500	0.126	6.923
61–62.9	.078	10.556	12.335	2.863	.586	.206	26.624
63–64.9	.061	24.605	52.594	15.586	2.663	.618	96.127
65–66.9	.029	28.185	120.903	58.668	10.849	2.298	220.932
67–68.9	.005	14.333	134.539	115.311	26.780	5.914	296.882
69–70.9	.001	3.349	68.364	107.105	36.330	8.481	223.630
71–72.9		.507	15.762	49.064	26.321	7.060	98.714
73 and over		.137	1.961	11.883	11.623	4.560	30.164
Total	.212	83.693	409.085	362.091	115.652	29.263	999.996

Mean stature, 67.49 inches. Standard deviation, 2.714 inches. Coefficient of variation, 4.021 inches.

TABLE 12.—*Distribution of stature and weight in 6,359 American born Civil War draft recruits (Baxter,*[1] *Vol. II, p. 300).*

Classes of stature (inches).	Classes of weight (pounds).						
	Under 100	100–119	120–139	140–159	160–179	180 and over.	Total.
Under 61	0.315	0.629	0.472	0.157			1.573
61–62.9	.629	13.996	8.177	1.887	0.157		24.847
63–64.9	.315	60.230	67.621	9.435	1.258		138.858
65–66.9	.629	58.500	170.939	57.242	4.403	1.258	292.971
67–68 9	.315	17.927	161.661	116.056	13.681	1.887	311.527
69–70.9		4.560	50.951	84.604	27.363	3.145	170.624
71–72.9			6.133	24.375	16.355	2.359	49.222
73 and over			.786	4.089	3.931	1.573	10.379
Total	2.202	155.842	466.740	297.846	67.149	10.222	1,000.000

Mean stature, 67.30 inches. Standard deviation, 2.3956 inches. Coefficient of variation, 3.560 inches.

7. MEAN STATURE FROM DIFFERENT STATES.

(*a*) *Recruits.*—The mean stature of 67.49 inches for recruits is obtained by lumping the statures of recruits from all States. It will be of interest to compare the stature of men from the different States. This comparison is made in Table 13, which gives the mean stature both in inches and centimeters for the different States, arranged in order of standing, the State with the highest stature being placed first. This table shows that the men of Texas have approximately an inch greater stature, on the average, than those of the entire United States, while men from Rhode Island have a stature an inch below the mean of the United States. The great stature of men from Texas is partly due to the fact that there has been to that State a very small immigration of men with the shorter statures characteristic of southeastern Europe. As shown in Table 17 probably in Texas under 1 per cent of the population is Italian, while Germans and Austrians are relatively common; native whites of native parentage comprise nearly 50 per cent, while nearly 25 per cent are Negroes. On the other hand, in Rhode Island 8 per cent of the population is Italian, 11 per cent French Canadian, and only 2 per cent German; 33 per cent were foreign-born whites. An examination of the table shows that the Southern States, Texas, Oklahoma, Mississippi, Tennessee, and Arkansas stand at the head of the list, while the States of the Northeast, especially those engaged in manufacturing, lie at the bottom of the list (Rhode Island, Connecticut, Pennsylvania, New York, Massachusetts, and New Jersey). The high stature of the men of the Southern States is due, as indicated, in part to the absence of recent immigration from southeastern Europe, and also in part to the average tall stature of Negroes. The short stature of the population of the manufacturing and maritime States of the Northeast is due in part to the presence in them of members of the shortest European races. In the upper half of the table one finds also States like Kansas, Idaho, Oregon, Nebraska, South Dakota, Iowa, and Minnesota, which are populated largely by Nordics.

TABLE 13.—*Mean stature by States, first million draft recruits; States arranged in order of standing with proportional weight and chest circumference at (expiration) for each inch of stature.*

State.	Number of men measured.	Mean height.		Mean weight. / Mean height.	Mean chest. / Mean height.
		Inches.	*Centimeters.*	*Pounds.*	*Inches.*
Texas	34,531	68.40	173.74	2.079	0.483
Oklahoma	19,429	68.28	173.43	2.084	.485
Mississippi	8,543	68.27	173.41	2.10	.485
Tennessee	14,426	68.27	173.41	2.052	.483
Arkansas	10,111	68.20	173.23	2.071	.486
Kansas	9,571	68.20	173.23	2.107	.487
Alaska	106	68.15	173.10	2.208	.493
Colorado	6,635	68.15	173.10	2.069	.485
North Carolina	14,668	68.15	173.10	2.076	.487
Arizona	3,850	68.13	173.05	2.099	.488
Idaho	4,031	68.10	172.97	2.133	.495
Oregon	2,748	68.09	172.95	2.150	.492
Nebraska	10,774	68.08	172.92	2.126	.488
South Dakota	3,892	68.05	172.85	2.159	.493
Iowa	19,537	68.04	172.82	2.126	.491
Minnesota	27,341	68.04	172.82	2.15	.494
Kentucky	15,502	68.02	172.77	2.058	.484
Alabama	15,988	68.01	172.75	2.077	.485
Montana	11,648	68.01	172.75	2.151	.492
Georgia	20,305	67.99	172.69	2.071	.488
Washington	13,316	67.96	172.62	2.140	.492
Missouri	24,964	67.95	172.59	2.081	.486
North Dakota	6,444	67.92	172.52	2.163	.497
West Virginia	12,367	67.87	172.39	2.085	.490
Utah	4,568	67.85	172.34	2.109	.488
Nevada	1,441	67.83	172.29	2.143	.497
Virginia	17,616	67.80	172.21	2.070	.489
Wyoming	1,927	67.79	172.19	2.13	.492
Indiana	23,194	67.75	172.09	2.090	.489
California	35,461	67.67	171.88	2.127	.493
South Carolina	9,343	67.64	171.81	2.077	.489
District of Columbia	4,486	67.63	171.78	2.077	.482
Louisiana	12,356	67.60	171.70	2.065	.489
Wisconsin	18,433	67.60	171.70	2.137	.496
Florida	5,895	67.58	171.65	2.061	.489
New Mexico	2,690	67.50	171.45	2.051	.491
Illinois	69,491	67.40	171.20	2.103	.493
Ohio	52,814	67.38	171.15	2.098	.491
Maine	3,315	67.28	170.89	2.10	.497
Michigan	41,872	67.23	170.76	2.11	.496
Delaware	1,891	67.19	170.66	2.075	.492
Vermont	2,077	67.12	170.48	2.091	.498
Maryland	9,192	67.08	170.38	2.09	.494
New Hampshire	2,240	66.97	170.10	2.095	.495
New Jersey	29,958	66.77	169.60	2.079	.498
Massachusetts	29,534	66.76	169.57	2.07	.496
New York	87,818	66.72	169.47	2.091	.497
Pennsylvania	77,186	66.72	169.47	2.094	.496
Connecticut	13,585	66.71	169.44	2.095	.501
Rhode Island	3,928	66.40	168.66	2.06	.494

(*b*) *Demobilized men.*—Table 14 gives the distribution of mean stature of men at demobilization, by States. In this table the States are arranged in order of mean stature of men, the States with the tallest men being placed at the top of the table.

TABLE 14.—*Mean stature, by States, of soldiers at demobilization (1919).*

State.	Number of men measured.	Mean stature.	
		Inches.	Centimeters.
United States	102,301	67.72	172.00
Alaska	13	69.43	176.35
Mississippi	2,099	68.61	174.28
Tennessee	2,807	68.61	174.26
Texas	4,361	68.60	174.21
Alabama	1,930	68.57	174.16
Georgia	3,397	68.51	174.01
Oklahoma	2,310	68.44	173.84
Nebraska	819	68.44	173.84
Kansas	1,012	68.43	173.82
Arkansas	2,576	68.41	173.76
South Dakota	416	68.39	173.70
Oregon	1,069	68.38	173.68
Washington	2,025	68.38	173.67
Montana	264	68.35	173.60
Arizona	130	68.33	173.55
South Carolina	828	68.32	173.51
Minnesota	1,950	68.31	173.51
Iowa	1,609	68.28	173.42
Idaho	161	68.26	173.39
Florida	1,022	68.22	173.28
North Carolina	1,815	68.22	173.27
West Virginia	1,686	68.20	173.24
Utah	104	68.19	173.21
Wyoming	80	68.16	173.13
Kentucky	2,921	68.13	173.05
Colorado	225	68.12	173.02
Virginia	1,920	68.01	172.75
Missouri	2,836	67.98	172.66
North Dakota	358	67.96	172.61
Nevada	18	67.91	172.50
California	481	67.91	172.49
Louisiana	2,070	67.86	172.36
New Mexico	229	67.82	172.27
Wisconsin	2,675	67.79	172.18
Indiana	3,994	67.73	172.03
Illinois	6,687	67.65	171.83
District of Columbia	231	67.60	171.70
Ohio	7,076	67.48	171.39
Michigan	3,715	67.32	170.99
Delaware	300	67.26	170.83
Maryland	1,138	67.20	170.70
Vermont	446	67.19	170.67
Maine	693	67.17	170.60
Connecticut	996	67.08	170.38
Pennsylvania	10,874	67.01	170.21
New Jersey	3,180	66.93	169.99
New York	9,207	66.92	169.98
New Hampshire	413	66.80	169.67
Massachusetts	4,782	66.77	169.60
Rhode Island	403	66.54	169.00

TABLE 15.—*Increase in stature of soldiers at demobilization over stature of recruits, 1917–1919 (inches).*

State.	Increase (inches).	State.	Increase (inches).
United States	0.23	Virginia	0.21
Alaska	1.28	New York	.20
South Carolina	.68	Arizona	.20
Florida	.64	Texas	.20
Alabama	.56	Wisconsin	.19
Georgia	.52	Idaho	.16
Washington	.41	New Jersey	.16
Connecticut	.37	Oklahoma	.16
Wyoming	.37	Rhode Island	.14
Nebraska	.36	Maryland	.12
Tennessee	.34	Kentucky	.11
Utah	.34	Ohio	.10
Mississippi	.34	Michigan	.09
Montana	.34	Nevada	.08
South Dakota	.34	North Carolina	.07
West Virginia	.33	Vermont	.07
New Mexico	.32	Delaware	.07
Oregon	.29	North Dakota	.04
Pennsylvania	.29	Missouri	.03
Minnesota	.27	Massachusetts	.01
Louisiana	.26	Indiana	−.02
Illinois	.25	Colorado	−.03
California	.24	District of Columbia	−.03
Iowa	.24	Maine	−.11
Kansas	.23	New Hampshire	−.17
Arkansas	.21		

8. COMPARISON OF STATURE OF RECRUITS AND VETERANS, BY STATES.

A comparison of Tables 13 and 14 and reference to Table 15 bring out many interesting differences in the stature of recruits and veterans. The increase in stature for the troops measured for the United States as a whole is about 0.23 inch. The State that showed the greatest increase in stature at demobilization as compared with mobilization is Alaska. The increase amounts to about 1.28 inches, but since this difference is based on only 13 men measured at demobilization, little stress is to be laid on it. The next on the list are the four Southern States of South Carolina, Florida, Alabama, and Georgia, in which the increase is from 0.68 to 0.52 inch. From these States there came many Negroes and also many white men of exceptionally tall stature. The end result of increase in stature is probably due to a combination of circumstances. Many of the Negroes assume a lax posture which the Army training would do much to correct and straighten. Similarly, many of the tall Southerners, as is well known, early acquire a stoop. Probably the mean for the recruits at induction was lowered to a certain extent by the inclusion of the measurement of some men subsequently rejected by the camp boards for underweight, defective physical development, etc. Finally, the men have acquired between one and two years additional age and, in the case of the younger troops who are still growing, this would mean an addition in stature, and this addition would be absolutely the greatest in the case of the tallest population, and this tallest population comes from just those Southern States. In the Southern States there are found in the upper half of the table the States which have acquired an increase of 0.25 inch or over, West Virginia, Tennessee, Mississippi, and Louisiana. Only the Southern States of Arkansas, Virginia, Texas, Kentucky, and North Carolina show an increase of less than 0.25 inch.

The increase of stature affected different States differently, so that the order in which they stand is changed in the two periods. Thus, Mississippi, which stood third in stature of recruits, is second in the stature of demobilized troops. Tennessee and Texas changed places. Alabama and Georgia are placed relatively much higher in the order of States at demobilization than at mobilization. On the other hand, farmers from Kansas increased only slightly in stature and consequently stand relatively low in the demobilized list.

In general, the Southern States show greater improvement in stature than the Northern States, and, as indicated above, there was greater room for improvement. Part of the improvement is doubtless to be attributed to the greatly bettered sanitation in the Army over that which they experienced at home. With the elimination of the hookworm infections and the "straightening up" resulting from the setting-up exercises of military drill, muscular weakness was relieved and the back strengthened. Consequently, 1 centimeter or more was added to the stature.

Among Northern States which showed a considerable increase in stature are: Washington, 0.42 inch; Connecticut, 0.37; Nebraska, 0.36; and Utah, 0.34. The States of the Northwest for the most part lie in the upper part of the table, and this is because they contain so many tall men who showed the greatest absolute increment in stature even if they are not proportionately increased over the shorter men.

While Rhode Island retains her position at the bottom of the list, her men made greater improvement in stature than those from some other States. At the bottom of the table of increase stand New Hampshire, the District of Columbia, and Indiana, in which there has been an average decrease in height at demobilization. Why there should have been a decrease of 0.17 inch in the case of New Hampshire troops is hard to say. Perhaps it is because the number of men examined is only 94 and the diminution is due to the accident of small numbers. Men from the District of Columbia remained practically unchanged in stature and this is probably because the District is a city made up, so far as white population goes, of men who are used to holding themselves well, assuming a good posture, for it is well known that the standing posture of men in cities is, on the whole, superior to that of rural districts. Similarly, the men of Massachusetts (largely urban in its population) have changed little in stature. In the lower half of the table, showing an increase of less than 0.20 inch, lie certain States of the Central West, such as Indiana, Missouri, North Dakota, Michigan, Ohio, and Oklahoma; also certain Eastern States, such as Delaware, Vermont, Maryland, Rhode Island, and New Jersey, States for the most part not marked by extremely tall stature, in which, therefore, any increase in size with age will be less marked than in the case of States containing tall men.

9. COMPARISON OF STATURE OF RECRUITS FROM THE VARIOUS STATES, 1863–1864 AND 1917–1918.

A natural inquiry is: How does the stature of draft recruits of 1917–1918 compare with that of recruits of the Civil War, 1861–1864, 55 years earlier? The mean stature of 1,104,841 white volunteer recruits in the first years of the Civil War was, according to Gould [2] (p. 105), 67.64; for 501,068 draft recruits (Baxter,[1] Vol. I, p. 23) it was 67.30.[a] The weighted average for the two groups was 67.502. To conclude that the average of our male population has diminished 0.15 inch, has increased 0.19 inch, or has remained practically stationary with a decrease of only 0.01 inch, would probably not be justified, for the population measured in 1861 is not strictly comparable with that measured in 1917–1918. For, first, the population of the Civil War recruits largely excluded the Southern States, which were in secession, while that of the World War included them. It is these Southern States that in 1917–1918 showed the tallest average stature; and the inclusion in the later data (and not in former) of several States above the average probably tends unduly to raise the 1917–1918 mean stature as compared with that of the Civil War. Second, in the Civil War there was a larger percentage of men below the ages of 21 and 24 than in the World War. In the Civil War 292 per 1,000 were below the age of 21 and 519.56 were below the age of 24, while in the World War only 95.94 were below the age of 21 and 433.56 below the age of 24.[b] Since many men under 21 have not reached their full stature and some not even until the age of 24, the exclusion of a number of men of the younger ages tends to raise the average for the World War.

A more just basis of comparison of mean stature in the two epochs is that between individual States. Table 16 has been drawn up from Gould's Table I,

[a] The "Draft recruits," considered by Baxter here, as well as elsewhere, include also draft substitutes and late volunteers, all raised during the "Draft" period.

[b] However, the present statistics deal only with men of ages 21 to 30, inclusive. The younger and older men included in the age compilation (see Table 2, Gould,[2] pp. 69, 34, and 57) were volunteers, officers, and enlisted men.

Chapter V, page 94. It should be recalled that this table includes only volunteers from the unculled part of the northern population during the first years of the Civil War. This table reveals a certain measure of stability in the order of average male statures in the different States, even during the course of half a century. In both the earlier and the later series Iowa, Kentucky, Missouri, and West Virginia stand near the top of the list (of these Northern States) and Connecticut and Rhode Island at the very bottom. New York, Pennsylvania, and Massachusetts stand low in both series—the effect of the immigration of South Irish and South German stock was already evident in 1861–1864. On examining the different columns it appears that there is an increase in mean stature in Minnesota, due to recent Scandinavian immigration thither; Wisconsin shows little change in mean stature because the increase of Scandinavians has counterbalanced the effect of the shorter immigrants. New Jersey's increase is probably largely due to its large commuting population, the overflow of the best of the metropolis which has attracted great numbers of men of exceptionally fine physique. The following States show a decrease: Illinois, 0.57 inch; Ohio, 0.46 inch; Rhode Island and Connecticut about 0.69 and 0.38, respectively; New York, 0.37; Indiana, 0.31; Michigan, 0.31; Massachusetts, 0.29. These are the States which have received most of the recent immigration of the Mediterraneans, Polish Jews, and Balkanese. The great reductions in Maine, New Hampshire, and Vermont are due chiefly to the immigration of the French Canadians into these States.

It is reasonable to suppose that, since this country has received a very large number of immigrants of prevailingly low statures from southern Europe during the last 50 years, the average stature of the population of the country should show a decrease. Such is, however, very difficult to demonstrate mathematically, since the methods used in the recruiting of the two armies at the two periods differed so materially.

TABLE 16.—*Comparison of stature (in inches) of native and foreign born white and colored draft recruits, United States, 1917–1918, and white recruits of the Civil War (Gould,[2] Table I, Chap. V), by States in order of 1917–1918 average statures (Louisiana omitted on account of scanty data in Gould's Table).*

State.	Stature (inches).		Difference.
	1917–1918	1861–1864	
Minnesota	68.04	67.63	+0.41
Iowa	68.04	68.13	−.09
Kentucky	68.02	68.16	−.14
Missouri	67.95	68.03	−.08
West Virginia	67.87	68.43	−.56
Indiana	67.75	68.06	−.31
Wisconsin	67.60	67.65	−.05
Illinois	67.40	67.97	−.57
Ohio	67.38	67.84	−.46
Maine	67.28	68.12	−.84
Michigan	67.23	67.62	−.39
Vermont	67.12	67.61	−.49
Maryland	67.08	67.31	−.23
New Hampshire	66.97	67.40	−.43
New Jersey	66.77	66.58	+.19
Massachusetts	66.76	67.05	−.29
New York	66.72	67.09	−.37
Pennsylvania	66.72	67.14	−.42
Connecticut	66.71	[a] 67.09	−.38
Rhode Island	66.40	[a] 67.09	−.69

[a] Data for Rhode Island and Connecticut consolidated, 67.09.

TABLE 17.—*Characteristics and composition of the popu-*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
1	Alabama 1	Mining and manufacturing area.	760,740	49.0	Birmingham	26.9
	Alabama 2	Large Negro population	563,441	44.0	Montgomery	14.8
	Alabama 3	Large native white population	577,627	35.0	...	5.3
	Alabama 4	Large Negro population	122,817	31.0	...	...
	Alabama 5	Urban and suburban area	95,308	41.0	Mobile	54.0
2	Arizona 1	Large Indian population, sparsely settled.	57,953	.9	...	12.2
	Arizona 2	Chiefly white population	146,371	2.9	...	38.4
3	Arkansas 1	Negro, Mississippi bottoms	641,940	36.0	Little Rock	17.6
	Arkansas 2	Large native white population, hill country.	212,005	19.0	...	3.4
	Arkansas 3	Large native white population	720,504	30.0	...	11.3
4	California 1	Chiefly agricultural area	1,433,885	16.1	Oakland Sacramento	46.9
	California 2	Mining area	83,226	4.4	...	10.5
	California 3	Sparsely populated	114,318	2.5	...	43.9
	California 4	Urban area	319,198	...	Los Angeles	100.0
	California 5	....do	416,912	9,689.0	San Francisco	100.0
5	Colorado 1	Large native white population	108,622	3.4	...	18.1
	Colorado 2	Russian population	89,813	8.0	...	28.8
	Colorado 3	English population	78,716	10.0	...	29.4
	Colorado 4	Prevailingly agricultural	139,574	5.0	Colorado Springs	33.5
	Colorado 5	Urban population	213,381	3,679.0	Denver	100.0
	Colorado 6	Austrian and Italian population.	159,918	8.0	Pueblo	46.5
6	Connecticut 1	Prevailingly agricultural and near metropolitan.	400,100	114.7	Norwich	78.2
	Connecticut 2	Manufacturing area	714,656	536.5	New Haven Bridgeport	96.1
7	Delaware	State undivided	202,322	103.0	Wilmington	48.0
8	District of Columbia.	District undivided	331,069	5,518.0	Washington	100.0
9	Florida 1	More white and maritime	248,836	18.7	Jacksonville	35.0
	Florida 2	More Negro and rural population	220,302	21.0	...	14.1
	Florida 3	Cuban, Spanish, West Indian population.	21,563	19.0	...	92.5
	Florida 4	Peninsular	261,918	8.7	Tampa	30.9
10	Georgia 1	Mixed population, native white predominating.	1,334,222	43.0	Atlanta	19.4
	Georgia 2	Large Negro population	1,274,899	45.0	Savannah Augusta	21.9
11	Idaho	State undivided	325,594	3.9	...	21.5
12	Illinois 1	Densely populated	434,972	192.5	Joliet Aurora	63.5
	Illinois 2	Mixed native and foreign population.	753,575	68.2	Peoria Rockford	43.9
	Illinois 3	Agricultural area, native	995,129	51.0	Springfield Decatur	24.3
	Illinois 4	Largely German population	344,621	80.0	East St. Louis	45.3
	Illinois 5	Urban area	2,185,283	11,812.0	Chicago	100.0
	Illinois 6	Negro population (Egypt)	52,591	80.0	...	41.9
	Illinois 7	Agricultural area	805,587	49.0	Bloomington	31.1
	Illinois 8	Agriculture and manufacturing area.	266,833	45.3	...	28.2
13	Indiana 1	Manufacturing	282,521	117.0	South Bend	69.3
	Indiana 2	Agricultural, considerable German.	128,679	37.0	...	18.6
	Indiana 3	Agricultural area, native stock	2,289,676	76.0	Indianapolis Evansville	40.4
14	Iowa 1	Foreign white, German and Scandinavian.	1,442,410	38.0	Sioux City Davenport	29.6

[1] Indian. [2] Chinese. [3] Japanese. [4] Russian.

lation of the various sections of the United States.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native parentage.	Foreign parentage.														
71.5	2.2	1.1	25.6	......	......	......	......	......	......	......	......	......	......	......	......
28.5	.6	.3	70.6	......	......	......	......	......	......	......	......	......	......	......	......
67.6	.8	.6	31.0	......	......	......	......	......	......	......	......	......	......	......	......
26.9	.2	.1	72.8	......	......	......	......	......	......	......	......	......	......	......	......
46.3	7.5	3.2	42.8	......	1.7	1.3	......	......	......	......	......	......	......	......	......
34.2	13.1	15.4	.6	36.6	1.5	......	2.2	......	......	......	......	......	......	8.4	......
42.8	23.6	25.9	1.1	6.6	2.2	1.9	2.5	......	......	1.2	......	......	......	7.8	......
41.7	2.0	.9	55.3	......	......	......	......	......	......	......	......	......	......	......	......
96.9	1.4	.5	.7	......	......	......	......	......	......	......	......	......	......	......	......
83.9	2.9	1.3	12.0	......	......	......	......	......	......	......	......	......	......	......	......
49.6	25.2	20.0	.8	[1] .7 [2] 1.5 [3] 2.1	5.7	3.7	2.8	......	2.6	3.8	......	2.2	......	......	......
47.2	27.3	19.9	.2	[1] 2.6 [2] 1.6 [3] 1.0	4.3	4.0	6.0	[4] .1 2.0	1.5	6.9	......	1.4	......	......	......
57.6	17.5	17.8	1.1	[1] 3.6 [2] .6 [3] 1.7	3.4	1.7	2.5	......	......	......	......	2.9	......	6.9	......
53.2	23.4	19.0	2.4	[2] .6 [3] 1.3	6.9	2.8	3.5	[4] 2.2	1.7	1.9	......	2.9	......	1.7	......
27.7	36.9	31.4	.4	[2] 2.5 [3] 1.1	11.7	13.1	3.5	[5] 1.5 [4] 1.6	4.4	6.4	......	1.8	......	......	1.3
73.9	15.7	8.6	.4	[1] 1.0	3.5	1.6	1.9	[5] 1.0	1.2	1.2	......	1.3	......	......	......
64.3	19.8	14.5	.2	[3] .6	4.8	1.2	1.8	[4] 8.3	3.3	......	......	1.2	......	......	......
54.3	27.1	17.6	.7	......	5.3	2.8	6.1	[5] 1.9	4.8	2.0	......	1.9	......	......	1.1
69.5	18.2	10.7	1.4	......	4.8	1.9	1.8	[5] 1.2 [4] 1.7	2.2	1.1	......	1.1	......	......	......
50.1	28.7	18.2	2.5	......	7.6	4.8	3.2	[5] 1.3 [4] 4.4	3.7	2.3	......	2.0	......	......	1.0
52.4	22.9	22.4	1.9	......	3.6	2.9	2.8	[5] 8.0	2.0	8.6	......	1.3	......	......	1.3
44.3	29.5	24.9	1.2	......	5.1	10.5	3.0	[5] 2.9 [4] 4.5	2.5	5.1	5.5	......	......	......	1.0
30.6	35.9	32.0	1.4	......	6.4	15.2	3.4	[5] 3.6 [4] 9.0	3.2	9.6	1.8	......	2.1	......	......
63.2	12.8	8.6	15.4	......	3.0	5.2	1.3	[4] 2.6	......	2.1	......	......	......	......	......
50.4	13.6	7.4	28.5	......	4.0	4.2	1.2	[4] 1.7	......	1.2	......	......	......	......	......
54.2	3.3	2.0	40.5	......	......	......	......	......	......	.2	......	......	......	[6] .02	......
40.5	1.0	.9	57.8	......	......	......	......	......	......	......	......	......	......	......	......
16.8	31.6	24.3	27.1	......	......	1.0	2.5	......	......	......	......	......	......	[6] 12.2 [7] 6.8	......
55.9	7.1	8.4	28.5	......	......	......	......	......	......	2.4	......	......	......	[6] 2.4	......
68.6	.9	.6	29.9	......	......	......	......	......	......	......	......	......	......	......	......
37.3	1.1	.6	61.0	......	......	......	......	......	......	......	......	......	......	......	......
62.5	23.1	12.4	.2	[1] 1.1 [2] .3 [3] .4	3.8	1.4	3.4	......	5.7	......	......	1.9	......	......	......
34.6	38.2	23.9	1.0	......	21.2	3.5	2.8	[5] 4.3 [4] 3.4	6.2	2.2	......	1.3	1.0	......	......
52.3	29.8	16.9	1.0	......	10.9	3.5	2.4	[5] 1.8 [4] 1.4	7.9	2.2	......	......	......	......	1.0
83.2	10.8	4.4	1.6	......	4.3	1.3	1.1	......	......	......	......	......	......	......	......
52.9	29.6	13.5	3.8	......	17.4	2.1	1.6	[5] 2.8 [4] 1.5	......	......	......	......	1.1	......	......
20.4	41.8	35.8	2.0	......	19.5	7.5	2.0	[5] 9.9 [4] 8.3	6.9	3.3	......	1.5	1.7	......	......
60.4	7.4	2.1	30.5	......	3.5	1.0	......	......	......	......	......	......	......	......	......
71.0	20.2	8.2	1.0	......	10.2	2.6	1.4	......	1.0	......	......	......	......	......	......
54.1	31.5	14.2	.2	......	15.2	4.1	2.4	......	5.4	......	......	......	......	......	......
50.6	27.0	21.8	.6	......	17.2	1.5	......	[5] 4.1 [4] 2.7	2.4	1.0	......	......	5.3	......	......
76.2	16.8	6.4	.4	......	8.1	2.0	......	......	......	......	......	......	......	......	......
82.5	11.0	3.9	2.5	......	5.6	1.3	......	......	......	......	......	......	......	......	......
50.7	31.2	14.8	.2	......	15.9	2.5	1.5	[5] 1.9	8.0	......	......	......	......	......	......

[5] Austrian. [6] Cuban. [7] West Indian.

TABLE 17.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
14	Iowa 2	Native White	782,361	44.0	Des Moines	32.3
15	Kansas 1	Russian population	198,998	12.0		16.3
	Kansas 2	Native and German population	1,491,951	23.0	Kansas City Wichita	30.9
16	Kentucky 1	Mountainous area, native white	569,797	44.0		4.5
	Kentucky 2	Agricultural area	1,720,108	63.0	Louisville Covington	30.8
17	Louisiana 1	Mississippi bottoms and upland, large Negro population.	599,548	36.8	Shreveport	13.3
	Louisiana 2	Urban area	339,075	1,695.0	New Orleans	100.0
	Louisiana 3	Rural, chiefly white population	717,765	24.8		10.8
18	Maine 1	English Canadian	222,741	13.0		41.2
	Maine 2	Native white stock, maritime	124,729	37.0		28.7
	Maine 3	French Canadian population	394,901	37.0	Portland Lewiston	64.2
19	Maryland 1	Urban area	680,834	1,001.0	Baltimore	82.0
	Maryland 2	Peninsular area	176,412	65.0		12.7
	Maryland 3	Large white population	400,354	77.0		19.3
	Maryland 4	Large Negro population	43,741	41.0		
20	Massachusetts 1	Mountainous area	148,850	89.0	Pittsfield	67.3
	Massachusetts 2	Manufacturing center	2,306,884	454.0	Worcester Fall River	93.3
	Massachusetts 3	Peninsular region	179,345	144.0	Brockton	73.7
	Massachusetts 4	Urban area	731,388	14,341.0	Boston Chelsea	100.0
21	Michigan 1	Finnish population	206,943	21.0		40.3
	Michigan 2	Prevailingly native white population.	1,158,767	34.0	Grand Rapids Kalamazoo	33.6
	Michigan 3	Foreign population	613,048	65.9	Bay Saginaw	33.6
	Michigan 4	Urban area	465,766		Detroit	100.0
	Michigan 5	Dutch and other foreign population.	259,078	65.6		27.2
22	Minnesota 1	Scandinavian population	558,953	12.0		10.6
	Minnesota 2	German and Scandinavian population.	752,212	31.0		18.7
	Minnesota 3	Scandinavians and Finns	207,388	15.0	Duluth	61.7
	Minnesota 4	Urban area, "Twin Cities"	557,155	766.0	Minneapolis St. Paul	93.8
23	Mississippi 1	Rural area, large Negro population.	1,029,399	45.0		10.7
	Mississippi 2	Rural area, large native white population.	714,715	32.0		12.7
24	Missouri 1	Native white, agricultural	1,936,845	41.0	Kansas City St. Joseph	30.0
	Missouri 2	Mississippi bottoms, considerable Negro population.	510,181	38.0		24.2
	Missouri 3	Native white, Ozark region	159,280	24.0		4.4
	Missouri 4	Urban area	687,029	11,263.0	St. Louis	100.0
25	Montana 1	Mining area, foreign population	225,098	5.6	Butte	49.6
	Montana 2	Sparsely settled, mountainous area.	150,955	1.4		14.4
26	Nebraska 1	German and Irish, foreign stocks	776,717	13.0	Omaha Lincoln	32.6
	Nebraska 2	German, Austrian, and Russian stocks.	413,497	23.0		13.9
27	Nevada 1	State undivided, sparse population.	81,875	.7		16.3
28	New Hampshire 1	Mountainous area	88,721	19.0		35.5
	New Hampshire 2	Manufacturing area	341,851	75.0	Manchester Nashua	65.4
29	New Jersey 1	Densely populated	1,514,588	2,145.0	Newark Jersey City	89.6
	New Jersey 2	Plains section, rural	733,624	177.6	Trenton Camden	56.0
	New Jersey 3	Mountainous area plus Atlantic County.	288,955	107.9	Atlantic City	48.1

[1] Austrian. [2] Russian. [3] Japanese

of the various sections of the United States—Continued.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native parentage.	Foreign parentage.														
73.1	17.7	7.6	1.4	......	4.9	2.1	1.6	......	2.9	......	......	......	......	......	......
60.3	25.7	12.7	1.3	......	6.1	......	1.0	[1]1.8 [2]13.1	3.3	......	......	......	......	......	......
72.9	16.1	7.4	3.4	[3] .2	5.4	1.5	1.3	[1]1.2	1.5	......	......	......	......	......	......
96.4	.7	.3	2.5	......	......	......	......	......	......	......	......	......	......	......	......
76.4	6.9	2.2	14.4	......	3.8	1.2	......	......	......	......	......	......	......	......	......
31.8	3.1	2.0	63.0	......	......	......	......	......	......	2.2	......	......	......	......	......
43.5	21.9	8.2	26.3	......	6.5	3.1	......	......	......	4.8	......	......	......	......	......
61.0	2.7	1.7	34.4	......	......	......	......	......	......	1.3	......	......	......	......	......
59.3	23.9	16.3	.2	......	......	1.9	......	......	1.0	......	5.0	15.3	......	......	......
86.1	7.8	5.8	.2	......	......	1.2	......	......	......	......	.9	2.9	......	......	......
64.7	18.2	16.9	.2	......	......	3.5	1.6	[2]1.3	......	......	12.5	5.1	......	......	......
49.6	23.1	12.9	14.3	......	13.3	3.4	......	[1]1.7 [2]6.4	......	1.1	......	......	......	......	......
65.6	1.7	1.1	31.6	......	......	......	......	......	......	......	......	......	......	......	......
73.4	7.9	3.4	14.8	......	2.7	1.1	......	......	......	......	......	......	......	......	......
50.0	1.3	.8	47.8	......	......	......	......	......	......	......	......	......	......	......	......
46.7	30.7	21.7	.8	......	4.1	10.4	2.6	[1]3.4 [2]3.3	......	3.2	7.6	1.4	......	......	1.3
33.3	34.7	31.2	.8	......	1.6	14.9	4.7	[1]1.9 [2]3.8	2.0	2.8	9.7	6.1	......	......	1.4
51.6	25.2	20.9	2.0	......	1.0	9.6	2.3	[2]3.4	3.1	3.3	2.7	5.0	......	......	......
23.9	38.2	35.8	1.9	......	2.7	22.0	2.9	[2]10.2	1.5	7.1	......	9.7	......	......	1.1
11.6	48.1	39.8	.1	[4].3	5.2	2.8	8.5	[1]5.5 [2]2.4	23.1	4.4	6.6	3.2	1.1	......	......
55.6	29.4	14.5	.4	[4].4	7.2	1.5	2.1	......	2.5	......	2.1	6.9	......	......	......
42.9	37.5	19.0	.5	......	16.3	2.1	2.5	[2]1.5	......	......	1.8	10.7	......	......	......
24.7	40.4	33.6	1.2	......	24.5	3.1	2.8	[1]4.3 [2]5.6	......	1.7	1.4	10.1	1.5	......	......
51.9	31.3	16.0	.6	[4].1	8.7	1.4	1.6	[2]1.2	2.4	......	......	2.5	......	......	......
23.3	49.0	26.2	......	[4]1.2	10.3	1.3	......	[1]1.4	37.4	......	1.3	2.1	......	......	......
31.9	47.8	20.1	......	......	22.3	2.6	......	[1]2.9	16.8	......	......	1.1	......	......	......
15.7	38.3	44.9	.8	......	5.5	1.8	1.9	[1]8.6 [2]2.7	31.1	......	2.9	5.4	......	......	......
30.9	40.8	27.2	1.0	......	12.2	4.2	1.5	[1]3.3 [2]2.7	22.0	......	1.2	2.4	......	......	......
27.3	.9	.5	71.2	......	......	......	......	......	......	......	......	......	......	......	......
64.5	.3	.6	33.4	......	......	......	......	......	......	......	......	......	......	......	......
81.4	10.9	4.4	3.2	......	4.7	1.2	......	......	......	......	......	......	......	......	......
76.6	10.4	3.1	9.9	......	5.8	......	......	......	......	......	......	......	......	......	......
94.4	3.9	1.4	.3	......	1.5	......	......	......	......	......	......	......	......	......	......
39.3	35.9	18.3	6.4	......	20.0	6.0	1.3	[1]2.5 [2]3.5	......	1.6	......	......	1.4	......	......
37.5	31.4	28.5	.6	[4]1.9	5.5	8.1	5.0	[1]4.5	7.7	2.4	......	4.1	......	......	1.2
51.5	23.9	18.1	.3	[4]6.1	5.2	2.6	2.2	[1]1.5	5.9	1.6	......	3.7	......	......	1.5
54.3	29.3	15.0	.9	[4].5	12.2	2.5	1.4	[1]3.9 [2]1.9	6.4	......	......	......	......	......	......
52.9	39.5	14.3	.1	[4].1	13.5	....	1.2	[1]5.5 [2]2.2	6.5	......	......	......	......	......	......
33.1	25.6	22.0	.6	[3]8.4 [5]1.1 [3]1.1	4.9	5.4	4.0	[1]1.2	2.6	4.6	......	2.5	......	......	......
60.8	21.6	17.4	......	......	......	1.6	1.0	......	......	......	12.9	9.6	......	......	......
51.6	24.5	23.7	.1	......	1.0	6.9	1.9	[2]1.5	......	......	17.3	4.7	......	......	......
28.7	37.5	31.5	2.2	......	14.0	10.0	3.5	[1]4.4 [2]7.1	......	8.9	......	......	2.2	......	1.4
54.7	21.7	18.1	5.6	......	6.6	5.6	2.7	[1]2.1 [2]4.4	......	4.4	......	......	3.4	......	......
60.4	17.6	16.7	5.2	......	4.4	4.9	2.4	[1]1.4 [2]2.0	......	6.7	......	......	3.2	......	......

[4] Indian. [5] Chinese.

TABLE 17.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
30	New Mexico 1	Indian population	59,970	2.0		
	New Mexico 2	Native white population	212,657	3.0		18.5
	New Mexico 3	Noteworthy Mexican element	54,614	1.7		13.1
31	New York 1	Suburban territory	565,449	210.0	Yonkers; Mount Vernon	57.9
	New York 2	Urban area, densely populated	4,766,883	16,667.0	New York City	100.0
	New York 3	Eastern manufacturing region	658,978	85.0	Albany; Schenectady	56.3
	New York 4	Western manufacturing region	1,361,257	141.0	Rochester; Syracuse	61.7
	New York 5	Mountainous Catskill region	284,857	101.0	Newburgh; Kingston	39.9
	New York 6	Urban area	423,715		Buffalo	100.0
	New York 7	Agricultural and dairying	774,620	62.0	Binghamton; Elmira	37.7
	New York 8	Mountainous Adirondack area	277,855	25.0		26.5
32	North Carolina 1	Sparsely populated mountainous area.	375,905	38.0		7.4
	North Carolina 2	Intermediate	657,162	62.0	Charlotte	21.7
	North Carolina 3	Native white of Scotch origin	296,425	40.0		3.8
	North Carolina 4	Large Negro population	651,669	51.0		16.1
	North Carolina 5	Island and peninsular area	55,975	19.0		0.0
	North Carolina 6	Remainder of State	133,408	29.0	Wilmington	19.3
33	North Dakota 1	Scandinavian and Canadian population.	113,603	12.0		10.9
	North Dakota 2	Scandinavian population	262,681	8.0		12.8
	North Dakota 3	Russian population	200,772	6.0		8.6
34	Ohio 1	Dense foreign population	989,804	478.0	Cleveland; Toledo	85.3
	Ohio 2	Intermediate	919,823	114.0	Youngstown; Akron	51.3
	Ohio 3	Agricultural area	2,493,883	81.0	Columbus; Dayton	38.2
	Ohio 4	Urban area	363,591	7,279.0	Cincinnati	100.0
35	Oklahoma 1	Marked Indian and Negro population.	615,973	24.0	Muscogee	17.2
	Oklahoma 2	Chiefly white population	1,041,182	23.0	Oklahoma City	20.6
36	Oregon 1	Fairly densely populated	445,464	29.5	Portland	56.9
	Oregon 2	Columbia River Valley and coastal dry plain, sparsely populated	227,301	2.8		23.4
37	Pennsylvania 1	Urban area	1,549,008	11,647.0	Philadelphia	100.0
	Pennsylvania 2	Rural area, native stock	1,877,385	132.0	Reading; Harrisburg	42.5
	Pennsylvania 3	Mining area	1,067,487	245.0	Scranton; Wilkes-Barre	66.7
	Pennsylvania 4	Coal mining	357,356	118.5		33.7
	Pennsylvania 5	Manufacturing	750,892	182.0	Johnstown; Altoona	37.7
	Pennsylvania 6	Rural area	892,495	74.0	Erie; New Castle	40.5
	Pennsylvania 7	Allegheny County plus a small rural area	1,363,333	181.0	Pittsburgh; McKeesport	70.4
38	Rhode Island	State undivided	542,610	508.0	Providence; Pawtucket	96.7
39	South Carolina 1	Native white	300,348	77.0		16.9
	South Carolina 2	Large Negro population	638,941	50.0	Columbia	12.8
	South Carolina 3	Peninsular and rural areas	576,111	41.0	Charleston	16.1
40	South Dakota 1	Dry farming area	480,230	9.0		15.2
	South Dakota 2	Large Russian population	87,826	8.0		4.2
	South Dakota	Indian population	15,832	1.0		
41	Tennessee 1	Negroes, Mississippi bottoms	352,510	57.5		9.5
	Tennessee 2	Agricultural region	1,148,013	51.5	Memphis; Nashville	27.8
	Tennessee 3	Mountainous region	683,266	51.5	Chattanooga	12.9

of the various sections of the United States—Continued.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native parentage.	Foreign parentage.														
61.1	3.8	6.2	.1	[1] 29.1	...	...	...	...	...	...	...	...	...	1.6	...
86.9	6.2	5.0	.6	[1] 1.2	1.4	...	...	...	...	1.1	...	...	...	1.5	...
61.5	19.8	16.8	.6	[1] 1.3	1.2	...	...	...	...	...	...	...	...	14.3	...
44.7	27.6	24.6	2.9	...	7.3	10.6	2.8	[2] 2.8 [3] 4.0	...	8.3	...	...	1.5	...	1.1
19.3	38.1	40.4	1.9	...	12.7	11.7	2.3	[2] 6.1 [3] 15.1	...	11.1	...	...	2.3	...	...
59.4	24.2	15.7	.7	...	6.6	8.2	2.4	[2] 1.6 [3] 2.7	...	3.7	1.8	...	...	...	...
47.8	30.9	20.6	.5	...	10.8	7.6	3.6	[2] 2.1 [3] 2.7	...	4.7	...	3.4	...	...	...
60.4	20.0	16.0	2.5	...	5.8	7.6	2.1	[2] 1.8 [3] 2.6	...	5.4	...	...	...	...	...
28.2	43.2	28.0	.4	...	27.9	6.1	2.4	[2] 3.4 [3] 3.8	...	4.4	...	4.7	...	...	...
70.8	17.9	10.5	.6	...	4.9	5.3	1.8	...	2.4	2.4	...	...	...	...	...
62.5	24.7	12.0	.2	...	1.1	5.4	...	[3] 1.0	...	1.0	6.7	5.1	...	...	...
90.8	.5	.2	8.3	...	...	...	...	...	...	...	...	...	...	...	...
74.7	.4	.3	24.7	...	...	...	...	...	...	...	...	...	...	...	...
60.9	.4	.2	38.1	...	...	...	...	...	...	...	...	...	...	...	...
51.9	.3	.2	47.3	...	...	...	...	...	...	...	...	...	...	...	...
69.6	.3	.1	29.8	...	...	...	...	...	...	...	...	...	...	...	...
57.1	.9	.7	41.2	...	...	...	...	...	...	...	...	...	...	...	...
21.2	47.7	28.6	...	[1] 2.4	6.2	1.5	1.2	[3] 2.2	24.0	...	...	16.0	...	...	...
31.8	43.3	24.2	...	[1] .6	8.0	1.5	...	[3] 1.4	30.6	...	...	3.8	...	...	...
27.3	41.4	29.9	...	[1] 1.2	8.5	1.2	1.3	[3] 26.7	13.9	...	...	2.9	...	...	...
33.1	37.1	28.4	1.3	...	18.9	4.2	3.1	[2] 8.5 [3] 4.8	...	2.1	...	1.8	6.2	...	...
64.7	20.0	15.0	1.1	...	6.3	2.3	3.9	[2] 2.8 [3] 1.2	...	3.0	...	...	3.6	...	...
78.7	13.7	4.8	2.8	...	7.1	1.6	...	...	...	...	...	...	...	...	...
42.6	36.4	15.6	5.4	...	24.3	5.3	...	[2] 2.2	...	1.0	...	...	1.9	...	...
72.6	2.9	1.5	13.7	[1] 9.2	...	...	...	...	...	...	...	...	...	...	...
82.7	7.2	3.7	5.0	[1] 1.7	2.4	...	...	[3] 1.2	...	...	...	...	...	...	...
55.5	23.1	18.5	.3	[1] .4 [4] 1.5 [5] .6	7.4	1.9	2.2	[2] 1.3 [3] 1.8	5.2	1.2	...	2.6	...	...	...
74.5	14.3	9.1	.1	[1] 1.4 [4] .3 [5] .3	3.2	1.4	1.4	...	2.7	...	...	1.7	...	...	...
37.7	32.1	24.7	5.4	...	9.7	12.8	3.7	[2] 1.9 [3] 8.8	...	4.8	...	...	1.1	...	...
79.5	9.8	7.9	2.6	...	3.2	2.5	1.0	[2] 1.6 [3] 1.0	...	1.9	...	...	1.2	...	...
42.5	32.5	23.8	.2	...	5.6	6.7	6.4	[2] 10.0 [3] 11.0	...	3.9	...	...	2.3	...	...
61.3	18.1	18.4	2.2	...	1.6	1.7	2.3	[2] 6.1 [3] 2.8	...	5.3	...	...	3.5	...	...
56.8	19.7	22.2	1.3	...	4.5	1.5	2.0	[2] 11.4 [3] 2.4	...	5.9	...	...	5.5	...	.7
64.1	20.5	14.8	.6	...	5.4	2.7	1.8	[2] 3.8 [3] 1.7	2.8	4.1	...	...	1.7	...	...
45.6	29.3	22.3	2.7	...	10.7	5.8	2.9	[2] 6.5 [3] 4.7	...	3.3	...	...	...	...	...
29.4	35.9	32.8	1.8	...	1.7	13.5	7.8	[2] 1.6 [3] 2.7	2.3	7.8	11.4	1.9	...	...	1.8
67.8	.4	.3	31.4	...	...	...	...	...	...	...	...	...	...	...	...
39.5	.5	.3	59.9	...	...	...	...	...	...	...	...	...	...	...	...
35.7	1.2	.6	62.2	...	...	...	...	...	...	...	...	...	...	...	...
44.7	37.2	16.8	...	[1] 1.1	10.7	2.4	1.6	[2] 1.7 [3] 1.3	15.5	...	...	1.3	...	...	...
33.5	43.8	22.3	...	...	10.3	1.2	1.0	[2] 3.3 [3] 25.6	7.5	...	...	...	...	...	...
8.1	1.6	2.5	...	[1] 87.2	...	...	...	...	...	...	...	...	...	...	...
54.5	.8	.4	44.2	...	...	...	...	...	...	...	...	...	...	...	...
74.1	2.4	1.1	22.0	...	...	...	...	...	...	...	...	...	...	...	...
89.5	1.1	.6	9.3	...	...	...	...	...	...	...	...	...	...	...	...

[1] Indian. [2] Austrian. [3] Russian. [4] Chinese. [5] Japanese.

TABLE 17.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
42	Texas 1	Large Mexican population	606,641	8.0	San Antonio El Paso	33.8
	Texas 2	Sparsely settled, white	2,663,848	16.7	Dallas Houston	22.3
	Texas 3	German and Negro population	199,787	32.5	Austin	22.8
	Texas 4	Coastal native population	268,413	17.5	Galveston	31.5
	Texas 5	Large Negro population	157,853	24.0		6.3
43	Utah 1	Sparsely populated	88,753	1.3		17.2
	Utah 2	More densely populated	254,504	44.0	Salt Lake City Ogden	60.6
	Utah	Mining area	30,094	3.0		11.4
44	Vermont	State undivided	355,956	39.0		47.5
45	Virginia 1	Peninsular region and east shore	324,242	130.0	Norfolk Portsmouth	38.9
	Virginia 2	Large Negro population	601,358	50.0	Richmond	27.9
	Virginia 3	Native rural region	495,840	44.0	Lynchburg	16.6
	Virginia 4	Mountain, white	640,172	43.0	Roanoke	15.6
46	Washington 1	Coastal region plus eastern counties.	436,342	14.0	Spokane	43.4
	Washington 2	Puget Sound, foreign white	569,055	54.0	Seattle Takoma	68.1
	Washington 3	Mountainous area	136,283	6.0		17 7
47	West Virginia 1	do	186,238	29.0		13.3
	West Virginia	Agricultural region	1,034,881	59.0	Wheeling Huntington	19.6
48	Wisconsin 1	Scandinavian and German population.	496,265	24.0	La Crosse	26.4
	Wisconsin 2	German population	1,053,772	35.0	Oshkosk Green Bay	30.4
	Wisconsin 3	Urban and foreign stock	433,187	1,881.0	Milwaukee	90.9
	Wisconsin 4	Lake counties	350,636	84.0	Superior Racine	45.5
49	Wyoming	State undivided, sparsely populated.	145,965	1.5		29.6

of the various sections of the United States—Continued.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native parentage.	Foreign parentage.														
44.1	25.0	21.2	9.6	......	5.5	......	......	......	......	......	......	......	......	17.1	......
77.6	4.1	2.3	15.9	......	1.6	......	......	......	......	......	......	......	......	......	......
33.9	26.5	11.4	28.1	......	7.1	......	......	[1]5.4	......	......	......	......	......	1.7	......
52.3	13.1	7.7	26.8	......	4.7	.9	......	[1]1.3	......	1.5	......	......	......	1.2	......
37.3	7.6	4.0	51.1	......	30.0	......	......	[1]3.0	......	1.5	......	......	......	......	......
53.6	31.4	11.7	.1	[2]3.7	......	......	8.3	......	10.4	1.0	......	......	......	......	1.2
43.5	36.8	18.6	.4	[2].7	2.4	1.1	13.2	......	10.5	......	......	......	......	......	1.8
44.5	33.7	20.2	......	[2]1.6	......	1.6	13.2	......	3.4	3.7	......	......	......	......	2.0
64.4	21.1	14.0	.5	......	......	4.1	1.0	[3]1.0	......	1.8	7.8	4.4	......	......	1.1
49.5	3.6	2.8	44.0	......	......	......	......	......	......	......	......	......	......	......	......
46.6	2.4	1.4	49.6	......	......	......	......	......	......	......	......	......	......	......	......
64.8	1.3	.7	33.2	......	......	......	......	......	......	......	......	......	......	......	......
88.0	.9	.8	10.2	......	......	......	......	......	......	......	......	......	......	......	......
57.6	22.9	17.7	.4	[2].7 [4].3 [5].4	6.2	2.0	1.9	[1]1.3 [3]2.0	6.7	1.0	......	3.3	......	......	......
44.5	27.2	25.1	.7	[2].6 [4].2 [5]1.8	5.7	2.4	3.2	[1]1.5 [3]1.1	13.5	1.6	......	5.0	......	......	1.2
59.4	20.6	15.6	.5	[2]3.3 [4].1 [5].4	4.6	1.6	2.4	[1]2.2 [3]1.4	3.3	1.8	......	3.3	......	......	1.0
86.8	3.7	4.8	4.5	......	......	......	......	[1]1.1	......	2.4	......	......	......	......	......
85.7	4.9	4.6	5.4	......	1.6	......	......	......	......	1.6	......	......	......	......	......
31.8	44.2	23.1	.1	[2].8	13.6	1.7	......	[1]3.2 [3]1.3	22.3	......	1.5	2.5	......	......	......
38.0	43.2	18.2	.1	[2].5	26.3	2.9	1.7	[1]1.8 [3]1.0	10.2	......	......	......	......	......	......
21.6	48.3	29.8	.2	......	43.9	2.1	1.1	[1]4.5 [3]4.1	1.1	1.1	......	......	1.9	......	......
31.7	45.9	21.9	.1	[2].3	27.1	2.1	1.3	[1]4.3 [3]2.5	4.6	......	......	......	......	......	......
55.3	22.3	18.6	1.5	[2]1.0 [5]1.1	4.3	2.5	3.8	[1]3.6	2.7	1.6	......	1.2	......	......	2.0

[1] Austrian. [2] Indian. [3] Russian. [4] Chinese. [5] Japanese.

TABLE 18.—*List of counties comprised in each "section."*

ALABAMA.

Section I: Blount, Cherokee, Colbert, Cullman, De Kalb, Etowah, Fayette, Franklin, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Limestone, Madison, Marion, Marshall, Morgan, Tuscaloosa, Walker, Winston.
Section II: Autauga, Barbour, Bullock, Butler, Chambers, Clarke, Dallas, Lee, Lowndes, Macon, Marengo, Monroe, Montgomery, Perry, Russell, Wilcox.
Section III: Baldwin, Bibb, Calhoun, Chilton, Clay, Cleburne, Coffee, Conecuh, Coosa, Covington, Crenshaw, Dale, Elmore, Escambia, Geneva, Henry, Houston, Pike, Randolph, St. Clair, Shelby, Talladega, Tallapoosa.
Section IV: Choctaw, Greene, Hale, Pickens, Sumter.
Section V: Mobile and Washington.

ARIZONA.

Section I: Apache, Coconino, Gila, Mohave, Navajo, Pinal.
Section II: Cochise, Graham, Greenlee, Maricopa, Pima, Santa Cruz, Yavapai, Yuma.

ARKANSAS.

Section I: Ashley, Chicot, Columbia, Crittenden, Cross, Desha, Drew, Hempstead, Jackson, Jefferson, Lafayette, Lee, Lincoln, Little River, Lonoke, Miller, Mississippi, Monroe, Ouachita, Phillips, Pulaski, St. Francis, Union, Woodruff.
Section II: Baxter, Boone, Carroll, Cleburne, Fulton, Izard, Madison, Marion, Montgomery, Newton, Polk, Searcy, Scott, Sharp, Stone, Van Buren.
Section III: Arkansas, Benton, Bradley, Calhoun, Clark, Clay, Cleveland, Conway, Craighead, Crawford, Dallas, Faulkner, Franklin, Garland, Grant, Greene, Hot Spring, Howard, Independence, Johnson, Lawrence, Logan, Nevada, Perry, Pike, Poinsett, Pope, Prairie, Randolph, Saline, Sebastian, Sevier, Washington, White, Yell.

CALIFORNIA.

Section I: Alameda, Butte, Colusa, Contra Costa, Del Norte, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Los Angeles, Madera, Marin, Mendocino, Merced, Monterey, Napa, Orange, Sacramento, San Benito, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Ventura, Yolo, Yuba.
Section II: Amador, Calaveras, Eldorado, Lassen, Mariposa, Modoc, Nevada, Placer, Plumas, Sierra, Tuolumne.
Section III: Alpine, Imperial, Inyo, Mono, Riverside, San Bernardino.
Section IV: Includes city of Los Angeles.
Section V: Includes city of San Francisco.

COLORADO.

Section I: Alamosa, Archuleta, Conejos, Costilla, Delta, Garfield, Grand, Hinsdale, Jackson, La Plata, Mesa, Mineral, Moffat, Montezuma, Montrose, Rio Blanco, Rio Grande, Routt, Saguache.
Section II: Larimer, Logan, Morgan, Phillips, Sedgwick, Weld.
Section III: Boulder, Clear Creek, Eagle, Douglas, Gilpin, Jefferson, Park, Summit, Teller.
Section IV: Adams, Arapahoe, Baca, Bent, Cheyenne, Crowley, Elbert, El Paso, Kiowa, Kit Carson. Lincoln, Otero, Prowers, Washington, Yuma.
Section V: Includes city and county of Denver.
Section VI: Chaffee. Custer, Dolores, Fremont, Gunnison, Huerfano, Lake, Las Animas, Ouray, Pitkin, Pueblo, San Juan, San Miguel.

CONNECTICUT.

Section I: Fairfield, Litchfield, Middlesex, New London, Tolland, Windham.
Section II: Hartford, New Haven.
Cities not included in counties, Bridgeport and Stamford.

DELAWARE.

Section I: Includes entire State.

DISTRICT OF COLUMBIA.

Section I: Includes entire District.

FLORIDA.

Section I: Bay, Calhoun, Duval, Escambia, Franklin, Holmes, Jackson, Lafayette, Liberty, Nassau, Okaloosa, Santa Rosa, Taylor, Wakulla, Walton, Washington.

Section II: Alachua, Citrus, Columbia, Gadsden, Hamilton, Hernando, Jefferson, Leon, Levy, Madison, Marion, Putnam, Suwanee.

Section III: Includes county of Monroe.

Section IV: Baker, Bradford, Brevard, Broward, Clay, Dade, De Soto, Hillsboro, Lake, Lee, Manatee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, St. Lucie, Seminole, Sumter, Volusia.

GEORGIA.

Section I: Appling, Bacon, Banks, Barrow, Bartow, Ben Hill, Berrien, Brooks, Bullock, Campbell, Candler, Carroll, Catoosa, Charlton, Chattooga, Cherokee, Clayton, Clinch, Cobb, Coffee, Colquitt, Dade, Dawson, Dekalb, Dodge, Douglas, Echols, Effingham, Emanuel, Evans, Fannin, Fayette, Floyd, Forsyth, Franklin, Fulton, Gilmer, Gordon, Grady, Gwinnett, Hall, Habersham, Haralson, Hart, Heard, Irwin, Jackson, Jeff Davis, Johnson, Laurens, Lowndes, Madison, Lumpkin, Milton, Montgomery, Murray, Oconee, Paulding, Pickens, Pierce, Polk, Rabun, Rockdale, Stephens, Tattnall, Telfair, Thomas, Tift, Toombs, Towns, Turner, Union, Walker, Walton, Ware, Wayne, Wheeler, White, Whitfield, Wilcox, and Worth.

Section II: Baker, Baldwin, Bibb, Bleckley, Bryan, Burke, Butts, Calhoun, Camden, Chatham, Chattahoochee, Clarke, Clay, Columbia, Coweta, Crawford, Crisp, Decatur, Dooly, Dougherty, Early, Elbert, Glasscock, Glynn, Greene, Hancock, Harris, Henry, Houston, Jasper, Jefferson, Jenkins, Jones, Lee, Liberty, Lincoln, McDuffie, McIntosh, Macon, Marion, Meriwether, Miller, Mitchell, Monroe, Morgan, Muscogee, Newton, Oglethorpe, Pike, Pulaski, Putnam, Quitman, Randolph, Richmond, Schley, Screven, Spalding, Stewart, Sumter, Talbot, Taliaferro, Taylor, Terrell, Troup, Twiggs, Upson, Warren, Washington, Webster, Wilkes, and Wilkinson.

IDAHO.

Section I: Includes entire State.

ILLINOIS.

Section I: Cook (except city of Chicago), Dupage, Kane, Lake.

Cities not included in counties, Joliet.

Section II: Adams, Bureau, Fulton, Grundy, Hancock, Henderson, Henry, Kendall, Knox, La Salle, Marshall, Mercer, Peoria, Putnam, Rock Island, Stark, Warren, Will.

Cities not included in counties, Rockford.

Section III: Bond, Calhoun, Christian, Clark, Clay, Coles, Crawford, Cumberland, Douglas, Edgar, Edwards, Effingham, Fayette, Franklin, Gallatin, Greene, Hamilton, Hardin, Jackson, Jasper, Jefferson, Jersey, Johnson, Lawrence, Marion, Montgomery, Morgan, Moultrie, Perry, Pike, Pope, Richland, Saline, Sangamon, Scott, Shelby, Union, Wabash, Wayne, White, Williamson.

Cities not included in counties, Decatur and Danville.

Section IV: Clinton, Macoupin, Madison, Monroe, Randolph, St. Clair, Washington.

Section V: Includes city of Chicago.

Section VI: Alexander, Massac, Pulaski.

Section VII: Brown, Cass, Champaign, Dewitt, Ford, Iroquois, Kankakee, Livingston, Logan, McDonough, McLean, Macon, Mason, Menard, Platt, Schuyler, Tazewell, Vermillion, Woodford.

Section VIII: Boone, Carroll, Dekalb, Jo Daviess, Lee, McHenry, Ogle, Stephenson, Whiteside, Winnebago.

INDIANA.

Section I: Elkhart, Lake, Laporte, Porter, St. Joseph.

Section II: Benton, Jasper, Newton, Pulaski, Starke, Tippecanoe, Warren, White.

Section III: Adams, Allen, Bartholomew, Blackford, Boone, Brown, Carroll, Cass, Clark, Clay, Clinton, Crawford, Daviess, Dearborn, Decatur, Dekalb, Delaware, Dubois, Fayette, Floyd, Fountain, Franklin, Fulton, Gibson, Grant, Greene, Hamilton, Hancock, Harrison, Hendricks, Henry, Howard, Huntington, Jackson, Jay, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lagrange, Lawrence, Madison, Marion, Marshall, Martin, Miami, Monroe, Montgomery, Morgan, Noble, Ohio, Orange, Owen, Parke, Perry, Pike, Posey, Putnam, Randolph, Ripley, Rush, Scott, Shelby, Spencer, Steuben, Sullivan, Switzerland, Tipton, Union, Vanderburg, Vermillion, Vigo, Wabash, Warrick, Washington, Wayne, Wells, Whitley.

IOWA..

Section I: Allamakee, Audubon, Benton, Blackhawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clay, Clayton, Clinton, Crawford, Delaware, Dickinson, Dubuque, Emmett, Fayette, Floyd, Franklin, Grundy, Hamilton, Hancock, Hardin, Harrison, Howard, Humboldt, Ida, Iowa, Jackson, Johnson, Jones, Linn, Lyon, Marshall, Mitchell, Monona, Muscatine, O'Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Pottawattamie, Sac, Scott, Shelby, Sioux, Story, Tama, Webster, Winnebago, Winneshiek, Woodbury, Worth, Wright.

Section II: Adair, Adams, Appanoose, Clarke, Dallas, Davis, Decatur, Des Moines, Fremont, Greene, Guthrie, Henry, Jasper, Jefferson, Keokuk, Lee, Louisa, Lucas, Madison, Mahaska, Marion, Mills, Monroe, Montgomery, Page, Polk, Poweshiek, Ringgold, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne.

KANSAS.

Section I: Barton, Ellis, Gove, Greeley, Hamilton, Harvey, Kearny, Logan, McPherson, Marion, Ness, Reno, Rice, Rush, Russell, Trego, Wallace, Wichita.

Section II: Allen, Anderson, Atchison, Barber, Bourbon, Brown, Butler, Chase, Chautauqua, Cherokee, Cheyenne, Clark, Clay, Cloud, Coffey, Comanche, Cowley, Crawford, Decatur, Dickinson, Doniphan, Douglas, Edwards, Elk, Ellsworth, Finney, Ford, Franklin, Geary, Graham, Grant, Gray, Greenwood, Harper, Haskell, Hodgeman, Jackson, Jefferson, Jewell, Johnson, Kingman, Kiowa, Labette, Lane, Leavenworth, Lincoln, Linn, Lyon, Marshall, Meade, Miami, Mitchell, Montgomery, Morris, Morton, Nemaha, Neosho, Norton, Osage, Osborne, Ottawa, Pawnee, Phillips, Pottawatomie, Pratt, Rawlins, Republic, Riley, Rooks, Saline, Scott, Sedgwick, Seward, Shawnee, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Wabaunsee, Washington, Wilson, Woodson, Wyandotte.

KENTUCKY.

Section I: Bell, Boyd, Breathitt, Carter, Clay, Clinton, Cumberland, Elliott, Floyd, Greenup, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, Magoffin, Martin, Menifee, Monroe, Morgan, Owsley, Perry, Pike, Pulaski, Rockcastle, Rowan, Russell, Wayne, Whitley, Wolfe.

Section II: Adair, Allen, Anderson, Ballard, Barren, Bath, Boone, Bourbon, Boyle, Bracken, Breckinridge, Bullitt, Butler, Caldwell, Calloway, Campbell, Carlisle, Carroll, Casey, Christian, Clark, Crittenden, Daviess, Edmonson, Estill, Fayette, Fleming, Franklin, Fulton, Gallatin, Garrard, Grant, Graves, Grayson, Green, Hancock, Hardin, Harrison, Hart, Henderson, Henry, Hickman, Hopkins, Jefferson, Jessamine, Kenton, Larue, Lincoln, Livingston, Logan, Lyon, McCracken, McLean, Madison, Marion, Marshall, Mason, Meade, Mercer, Metcalfe, Montgomery, Muhlenberg, Nelson, Nicholas, Ohio, Oldham, Owen, Pendleton, Powell, Robertson, Scott, Shelby, Simpson, Spencer, Taylor, Todd, Trigg, Trimble, Union, Warren, Washington, Webster, Woodford.

LOUISIANA.

Section I (parishes): Ascension Bossier, Caddo, Claiborne, Concordia, De Soto, East Baton Rouge, East Carroll, East Feliciana, Iberville, Jefferson, Madison, Morehouse, Natchitoches, Ouachita, Plaquemines, Pointe Coupee, Red River, Richland, St. Charles, St. James, St. John the Baptist, St. Mary, Tensas, Webster, West Baton Rouge, West Carroll, West Feliciana.

Section II: Includes parish of Orleans:

Section III (parishes): Acadia, Allen, Assumption, Avoyelles, Beauregard, Bienville, Calcasieu, Caldwell, Cameron, Catahoula, Evangeline, Franklin, Grant, Iberia, Jackson, Jefferson Davis, Lafayette, Lafourche, La Salle, Lincoln, Livingston, Rapides, Sabine, St. Bernard, St. Helena, St. Landry, St. Martin, St. Tammany, Tangipahoa, Terrebonne, Union, Vermilion, Vernon, Washington, Winn.

MAINE.

Section I: Aroostook, Penobscot, Piscataquis, Washington.

Section II: Hancock, Knox, Lincoln, Sagadahoc, Waldo.

Section III: Androscoggin, Cumberland, Franklin, Kennebec, Oxford, Somerset, York.

MARYLAND.

Section I: Includes county and city of Baltimore.

Section II: Caroline, Dorchester, Kent, Queen Anne, Somerset, Talbot, Wicomico, Worcester.

Section III: Allegany, Anne Arundel, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Prince Georges, Washington.

Section IV: Calvert, Charles, St. Marys.

MASSACHUSETTS.

Section I: Berkshire, Franklin.

Section II: Bristol, Essex, Hampden, Hampshire, Middlesex, Norfolk, Worcester.

Section III: Barnstable, Dukes, Nantucket, Plymouth.

Section IV: Suffolk.

MICHIGAN.

Section I: Alger, Baraga, Gogebic, Houghton, Iron, Keweenaw, Luce, Marquette, Ontonagon.

Section II: Alcona, Alpena, Antrim, Arenac, Barry, Benzie, Branch, Calhoun, Cass, Charlevoix, Cheboygan, Chippewa, Clare, Clinton, Crawford, Delta, Dickinson, Eaton, Emmet, Genessee, Gladwin, Grand Traverse, Gratiot, Hillsdale, Ingham, Ionia, Iosco, Isabella, Jackson, Kalamazoo, Kalkaska, Lake, Leelanau, Livingston, Mackinac, Manistee, Mason, Mecosta, Menominee, Midland, Missaukee, Montcalm, Montmorency, Newaygo, Oceana, Ogemaw, Osceola, Oscoda, Otsego, Presque Isle, Roscommon, St. Joseph, Schoolcraft, Shiawassee, Wexford.

City not included in counties, Grand Rapids.

Section III: Bay, Huron, Lapeer, Lenawee, Macomb, Monroe, Oakland, Saginaw, St. Clair, Sanilac, Tuscola, Washtenaw, Wayne (except for city of Detroit).

Section IV: Includes city of Detroit.

Section V: Allegan, Berrien, Kent, Muskegon, Ottawa, Van Buren.

MINNESOTA.

Section I: Aitkin, Anoka, Becker, Beltrami, Big Stone, Cass, Chippewa, Chisago, Clay, Clearwater, Crow Wing, Douglas, Grant, Hubbard, Isanti, Kanabec, Kandiyohi, Kittson, Koochiching, Lac qui Parle, Mahnomen, Marshall, Meeker, Mille Lacs, Norman, Otter Tail, Pennington, Pine, Polk, Pope, Red Lake, Renville, Roseau, Sherburne, Stevens, Swift, Todd, Traverse, Wadena, Wilkin.

Section II: Benton, Blue Earth, Brown, Carver, Cottonwood, Dakota, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Hennepin, Houston, Jackson, Le Sueur, Lincoln, Lyon, McLeod, Martin, Morrison, Mower, Murray, Nicollet, Nobles, Olmstead, Pipestone, Ramsay, Redwood, Rice, Rock, Scott, Sibley, Stearns, Steele, Wabasha, Waseca, Washington, Watonwan, Winona, Wright, Yellow Medicine.

Section III: Carlton, Cook, Itasca, Lake, St. Louis.

Section IV: Includes cities of Minneapolis and St. Paul.

MISSISSIPPI.

Section I: Adams, Amite, Attala, Benton, Bolivar, Carroll, Chickasaw, Claiborne, Clay, Coahoma, Copiah, De Soto, Grenada, Hinds, Holmes, Issaquena, Jefferson, Jefferson Davis, Kemper, Lafayette, Leflore, Lowndes, Madison, Marshall, Monroe, Montgomery, Noxubee, Panola, Oktibbeha, Rankin, Sharkey, Sunflower, Tallahatchie, Tate, Tunica, Warren, Washington, Wilkinson, Yalobusha, Yazoo.

Section II: Alcorn, Calhoun, Choctaw, Clarke, Covington, Forrest, Franklin, George, Greene, Hancock, Harrison, Itawamba, Jackson, Jasper, Jones, Lamar, Lauderdale, Lawrence, Leake, Lee, Lincoln, Marion, Neshoba, Newton, Pearl River, Perry, Pike, Pontotoc, Prentiss, Scott, Simpson, Smith, Stone, Tippah, Tishomingo, Union, Walthall, Wayne, Webster, Winston.

MISSOURI.

Section I: Adair, Andrew, Atchison, Barton, Bates, Benton, Bollinger, Buchanan, Butler, Caldwell, Camden, Carroll, Carter, Cass, Cedar, Clark, Clay, Clinton, Cole, Crawford, Dade, Dallas, Daviess, Dekalb, Dent, Dunklin, Franklin, Gasconade, Gentry, Greene, Grundy, Harrison, Henry, Hickory, Holt, Iron, Jasper, Jefferson, Johnson, Knox, Laclede, Lawrence, Lewis, Linn, Livingston, Macon, Madison, Maries, Mercer, Miller, Moniteau, Morgan, Newton, Nodaway, Oregon, Osage, Perry, Phelps, Platte, Polk, Pulaski, Putnam, Ray, Reynolds, Ripley, St. Clair, St. Francois, St. Louis, Ste. Genevieve, Schuyler, Scotland, Shannon, Shelby, Stoddard, Sullivan, Texas, Vernon, Washington, Wayne, Worth.

City not included in counties, Kansas City.

Section II: Audrain, Boone, Callaway, Cape Girardeau, Chariton, Cooper, Howard, Jackson, Lafayette, Lincoln, Marion, Mississippi, Monroe, Montgomery, New Madrid, Pemiscot, Pettis, Pike, Ralls, Randolph, St. Charles, Saline, Scott, Warren.

Section III: Barry, Christian, Douglas, Howell, McDonald, Ozark, Stone, Taney, Webster, Wright.

Section IV: Includes city of St. Louis.

MONTANA.

Section I: Broadwater, Carbon, Cascade, Deer Lodge, Flathead, Granite, Jefferson, Lewis and Clark, Lincoln, Mineral, Missoula, Powell, Sanders, Silver Bow, Stillwater, Yellowstone.

Section II: Beaverhead, Bighorn, Blaine, Carter, Chouteau, Custer, Dawson, Fallon, Fergus, Gallatin, Hill, Madison, Meagher, Musselshell, Park, Phillips, Prairie, Ravalli, Richland, Rosebud, Sheridan, Sweetgrass, Teton, Toole, Valley, Wheatland, Wibaux.

NEBRASKA.

Section I: Antelope, Banner, Blaine, Boxbutte, Boyd, Brown, Burt, Cass, Cedar, Chase, Cherry, Cheyenne, Cuming, Custer, Dakota, Dawes, Dawson, Deuel, Dixon, Dodge, Douglas, Dundy, Frontier, Gage, Garden, Garfield, Gosper, Grant, Greeley, Hayes, Holt, Hooker, Johnson, Keith, Keyapaha, Kimball, Knox, Lancaster, Lincoln, Logan, Loup, McPherson, Morrill, Nemaha, Otoe, Pawnee, Perkins, Pierce, Richardson, Rock, Sarpy, Saunders, Scotts Bluff, Sheridan, Sherman, Sioux, Thomas, Thurston, Valley, Washington, Wayne, Wheeler.

Section II: Adams, Boone, Buffalo, Butler, Clay, Colfax, Fillmore, Franklin, Furnas, Hall, Hamilton, Harlan, Hitchcock, Howard, Jefferson, Kearney, Madison, Merrick, Nance, Nuckolls, Phelps, Platte, Polk, Redwillow, Saline, Seward, Stanton, Thayer, Webster, York.

NEVADA.

Section I: Includes entire State.

NEW HAMPSHIRE.

Section I: Carroll, Coos, Grafton.
Section II: Belknap, Cheshire, Hillsborough, Merrimack, Rockingham, Strafford, Sullivan.

NEW JERSEY.

Section I: Bergen, Essex, Hudson, Passaic, Union.
Section II: Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Middlesex, Monmouth, Ocean, Salem.
City not included in counties, Orange.
Section III: Atlantic, Hunterdon, Morris, Somerset, Sussex, Warren.

NEW MEXICO.

Section I: McKinley, Rio Arriba, Sandoval, San Juan, Valencia.
Section II: Bernalillo, Chaves, Colfax, Curry, De Baca, Guadalupe, Lea, Lincoln, Mora, Quay, Roosevelt, San Miguel, Santa Fe, Socorro, Taos, Torrance, Union.
Section III: Dona Ana, Eddy, Grant, Lea (one-half), Luna, Otero, Sierra.

NEW YORK.

Section I: Dutchess, Nassau, Putnam, Suffolk, Westchester.
Section II: Kings, New York, Queens, Richmond.
Section III: Albany, Columbia, Fulton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Washington.
Section IV: Cayuga, Erie (except city of Buffalo), Genesee, Jefferson, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Seneca, Wayne.
Cities not included in counties, Amsterdam, Niagara Falls, Troy.
Section V: Greene, Orange, Rockland, Ulster.
Section VI: Includes city of Buffalo.
Section VII: Allegany, Broome, Cattaragus, Chautauqua, Chemung, Chenango, Cortland, Delaware, Livingston, Madison, Schuyler, Steuben, Sullivan, Tioga, Tompkins, Wyoming, Yates.
Section VIII: Clinton, Essex, Franklin, Hamilton, Lewis, St. Lawrence, Warren.

NORTH CAROLINA.

Section I: Ashe, Alleghany, Alexander, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Haywood, Graham, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga, Wilkes, Yancey.
Section II: Alamance, Cabarrus, Caswell, Catawba, Chatham, Cleveland, Davidson, Davie, Forsyth, Gaston, Guilford, Iredell, Lincoln, Mecklenburg, Orange, Person, Randolph, Rockingham, Rowan, Stokes, Surry, and Yadkin.
Section III: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Robeson, Sampson, Scotland, Stanley, Union.
Section IV: Beaufort, Bertie, Chowan, Craven, Durham, Edgecombe, Franklin, Gates, Granville, Greene, Halifax, Hertford, Jones, Johnston, Lenoir, Martin, Nash, Northhampton, Onslow, Pasquotank, Perquimans, Pitt, Vance, Wake, Warren, Washington, Wayne, Wilson.
Section V: Camden, Carteret, Currituck, Dare, Hyde, Pamlico, Tyrrell.
Section VI: Bladen, Brunswick, Columbus, Duplin, New Hanover, Pender.

NORTH DAKOTA.

Section I: Bottineau, Cavalier, Golden Valley, Grand Forks, Pembina, Rolette, Towner, Walsh.
Section II: Adams, Barnes, Benson, Billings, Bowman, Burke, Cass, Divide, Eddy, Foster, Griggs, McKenzie, Mountrail, Nelson, Ramsay, Ranson, Renville, Richland, Sargent, Slope, Steele, Traill, Ward, Williams.
Section III: Burleigh, Dickey, Dunn, Emmons, Grant, Hettinger, Kidder. Lamoure, Logan, McHenry, McIntosh, McLean, Mercer, Morton, Oliver, Pierce, Sheridan, Sioux, Stark, Stutsman, Wells.

OHIO.

Section I: Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa.

Section II: Ashtubula, Belmont, Carroll, Columbiana, Geauga, Guernsey, Harrison, Jefferson, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, Wayne.

Section III: Adams, Allen, Ashland, Athens, Auglaize, Brown, Butler, Champaign, Clark, Clermont, Clinton, Coshocton, Crawford, Darke, Defiance, Delaware, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Hamilton, Hancock, Hardin, Henry, Highland, Hocking, Holmes, Huron, Jackson, Knox, Lawrence, Licking, Logan, Madison, Marion, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Union, Van Wert, Vinton, Warren, Washington, Williams, Wood, Wyandot.

Section IV: City of Cincinnati.

OKLAHOMA.

Section I: Adair, Atoka, Bryan, Cherokee, Choctaw, Craig, Delaware, Haskell, Hughes, Johnston, Latimer, Le Flore, McCurtain, McIntosh, Mayes, Muskogee, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pittsburg, Pushmataha, Rogers, Seminole, Sequoyah, Tulsa, Wagoner, Washington.

Section II: Alfalfa, Beaver, Beckham, Blaine, Caddo, Canadian, Carter, Cimarron, Cleveland, Coal, Comanche, Cotton, Creek, Custer, Dewey, Ellis, Garfield, Garvin, Grady, Grant, Greer, Harmon, Harper, Jackson, Jefferson, Kay, Kingfisher, Kiowa, Lincoln, Logan, Love, McClain, Major, Marshall, Murray, Noble, Oklahoma, Pawnee, Payne, Pontotoc, Pottawatomie, Roger Mills, Stephens, Texas, Tillman, Washita, Woods, Woodward.

OREGON.

Section I: Benton, Clackamas, Clatsop, Columbia, Hood River, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Wasco, Washington, Yamhill.

Section II: Baker, Coos, Crook, Curry, Douglas, Gilliam, Grant, Harney, Jackson, Josephine, Klamath, Lake, Lane, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wheeler.

PENNSYLVANIA.

Section I: Philadelphia.

Section II: Adams, Bedford, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Franklin, Fulton, Huntington, Juniata, Lancaster, Lebanon, Lehigh, Mifflin, Monroe, Montgomery, Northampton, Perry, Pike, Snyder, Union, York.

Section III: Carbon, Columbia, Lackawanna, Luzerne, Montour, Northumberland, Schuylkill, Wayne.

Section IV: Beaver, Butler, Greene, Lawrence, Washington.

Section V: Blair, Cambria, Fayette, Somerset, Westmoreland.

City not included in counties, Altoona.

Section VI: Armstrong, Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Forest, Indiana, Jefferson, McKean, Mercer, Potter, Venango, Warren, Wyoming.

Cities not included in counties, Williamsport and New Castle.

Section VII: Allegheny, Bradford, Center, Clinton, Lycoming, Sullivan, Susquehanna, Tioga.

City not included in counties, McKeesport.

RHODE ISLAND.

Section I: Includes entire State.

SOUTH CAROLINA.

Section I: Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg.

Section II: Abbeville, Aiken, Bamberg, Barnwell, Calhoun, Chester, Edgefield, Fairfield, Greenwood, Kershaw, Lancaster, Laurens, Lexington, McCormick, Newberry, Orangeburg, Richland, Saluda, Union and York.

Section III: Beaufort, Berkley, Charlestown, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Florence, Georgetown, Hampton, Horry, Jasper, Lee, Marion, Marlboro, Sumter, Williamsburg.

SOUTH DAKOTA.

Section I: Aurora, Beadle, Brookings, Brown, Brule, Buffalo, Butte, Charles Mix, Clark, Clay, Codington, Custer, Davison, Day, Deuel, Douglas, Fall River, Faulk, Grant, Gregory, Hamlin, Hand, Harding, Hyde Jerauld, Kingsbury, Lake, Lawrence, Lincoln, Lyman, McCook, Marshall, Meade, Miner, Minnehaha, Moody, Pennington, Perkins, Roberts, Sanborn, Spink, Stanley, Union, Yankton.

Section II: Bonhomme, Campbell, Edmunds, Hanson, Hughes, Hutchinson, McPherson, Potter, Sully, Turner, Walworth.

Section III: Armstrong, Bennett, Corson, Dewey, Mellette, Shannon, Todd, Washabaugh, Washington, Ziebach.

TENNESSEE.

Section I: Crockett, Dyer, Fayette, Gibson, Hardeman, Haywood, Lake, Lauderdale, Madison, Obion, Shelby, Tipton.

Section II: Bedford, Benton, Cannon, Carroll, Cheatham, Chester, Clay, Coffee, Davidson, Decatur, Dekalb, Dickson, Fentress, Franklin, Giles, Grundy, Hardin, Henderson, Henry, Hickman, Houston, Humphreys, Jackson, Lawrence, Lewis, Lincoln, McNairy, Macon, Marshall, Maury, Montgomery, Moore, Overton, Perry, Pickett, Putnam, Robertson, Rutherford, Scott, Smith, Stewart, Sumner, Trousdale, Van Buren, Warren, Wayne, Weakley, White, Williamson, Wilson.

Cities not included in counties, Memphis and Knoxville.

Section III: Anderson, Bledsoe, Blount, Bradley, Campbell, Carter, Claiborne, Cocke, Cumberland, Grainger, Greene, Hamblen, Hamilton, Hancock, Hawkins, James, Jefferson, Johnson, Knox, Loudon, McMinn, Marion, Meigs, Monroe, Morgan, Polk, Rhea, Reane, Sequatchie, Sevier, Sullivan, Unico, Union, Washington.

TEXAS.

Section I: Atacosa, Bastrop, Bee, Bexar, Brewster, Brooks, Caldwell, Cameron, Comal, Culberson, Dimmit, Duval, El Paso, Frio, Goliad, Guadalupe, Hays, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Jim Wells, Karnes, Kinney, Kleberg, La Salle, Live Oak, McMullen, Maverick, Medina, Nueces, Pecos, Presidio, Reeves, San Patricio, Starr, Terrell, Travis Uvalde, Valverde, Webb, Willacy, Williamson, Wilson, Zapata, Zavalla.

Section II: Anderson, Andrews, Angelina, Archer, Armstrong, Bailey, Bandera, Baylor, Bell, Blanco, Borden, Bosque, Bowie, Briscoe, Brown, Burnet, Callahan, Camp, Carson, Cass, Castro, Cherokee, Childress, Clay, Cochran, Coke, Coleman, Collin, Collingsworth, Comanche, Concho, Cooke, Coryell, Cottle, Crane, Crockett, Crosby, Dallam, Dallas, Dawson, Deaf Smith, Delta, Denton, Dickens, Donley, Eastland, Ector, Edwards, Ellis, Erath, Falls, Fannin, Fisher, Floyd, Foard, Franklin, Freestone, Gaines, Garza, Gillespie, Glasscock, Gray, Grayson, Gregg, Hale, Hall, Hamilton, Hansford, Hardeman, Harrison, Hartley, Haskell, Hemphill, Henderson, Hill, Hockley, Hood, Hopkins, Houston, Howard, Hunt, Hutchinson, Irion, Jack, Jones, Kaufman, Kendall, Kent, Kerr, Kimble, King, Knox, Lamar, Lamb, Lampasas, Lee, Leon, Limestone, Lipscomb, Llano, Loving, Lubbock, Lynn, McCulloch, McLennan, Madison, Marion, Martin, Mason, Menard, Midland, Milam, Mills, Mitchell, Montague, Moore, Morris, Motley, Nacogdoches, Navarro, Nolan, Ochiltree, Oldham, Palo Pinto, Panola, Parker, Parmer, Polk, Potter, Rains, Randall, Reagan, Real, Red River, Roberts, Rockwall, Runnels, Rusk, San Augustine, San Saba, Schleicher, Scurry, Shackelford, Shelby, Sherman, Smith, Somervell, Stephens, Sterling, Stonewall, Sutton, Swisher, Tarrant, Taylor, Terry, Throckmorton, Titus, Tom Green, Trinity, Tyler, Upshur, Upton, Van Zandt, Ward, Wheeler, Wichita, Wilbarger, Winkler, Wise, Wood, Yoakum, Young.

City not included in counties, Houston.

Section III: Austin, Colorado, De Witt, Fayette, Gonzales, Lavaca, Washington.

City not included in counties, Austin.

Section IV: Aransas, Brazoria, Calhoun, Chambers, Galveston, Hardin, Harris, Jackson, Jasper, Jefferson, Liberty, Matagorda, Newton, Orange, Refugio, Sabine, Victoria, Wharton.

Section V: Brazos, Burleson, Ford Bend, Grimes, Montgomery, Robertson, San Jacinto, Walker, Waller.

UTAH.

Section I: Beaver, Box Elder, Emery, Garfield, Grand, Iron, Juab, Kane, Millard, Piute, San Juan, Sevler, Tooele, Uinta, Washington, Wayne.
Section II: Cache, Davis, Salt Lake, Sanpete, Utah, Weber.
Section III: Carbon, Duchesne, Morgan, Rich, Summit, Wasatch.

VERMONT.

Section I: Undivided.

VIRGINIA.

Section I: Accomac, Elizabeth City, Gloucester, Lancaster, Mathews, Middlesex, Norfolk, Northampton, Northumberland, Princess Anne, Warwick, York.
Section II: Amelia, Brunswick, Caroline, Charlotte, Charles City, Chesterfield, Cumberland, Dinwiddie, Essex, Goochland, Greensville, Halifax, Hanover, Henrico, Isle of Wight, James City, King and Queen, King George, King William, Lunenburg, Macklenburg, Nansemond, New Kent, Nottoway, Powhatan, Prince Edward, Prince George, Richmond, Surry, Sussex, Southampton, Westmoreland.
Section III: Albemarle, Alexandria, Amherst, Appomattox. Bedford, Buckingham, Campbell, Culpeper, Fairfax, Fauquier, Fluvanna, Franklin, Greene, Henry, Loudoun, Louisa, Madison, Nelson, Orange, Pittsylvania, Prince William, Rappahannock, Spotsylvania, Stafford.
Section IV: Alleghany, Augusta, Bath, Bland, Botetourt, Buchanan, Carroll, Clarke, Craig, Dickenson, Floyd, Frederick, Giles, Grayson, Highland, Lee, Montgomery, Page, Patrick, Pulaski, Roanoke, Rockbridge, Rockingham, Russell, Scott, Shenadoah, Smythe, Tazewell, Warren, Washington, Wise, Wythe.

WASHINGTON.

Section I: Adams. Asotin, Benton, Clallam, Clarke, Columbia, Cowlitz, Franklin, Garfield, Grays Harbor, Jefferson, Klickitat, Lewis, Lincoln, Mason, Pacific, Skamania, Spokane, Thurston, Wahkiakum, Walla Walla, Whitman.
Section II: Island, King, Kitsap, Pierce, San Juan, Skagit, Snohomish, Whatcom.
Section III: Chelan, Douglas, Ferry, Grant, Kittitas, Okanogan, Pend Oreille, Stevens, Yakima.

WEST VIRGINIA.

Section I: Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, Pocahontas, Preston, Randolph, Tucker.
Section II: Barbour, Boone, Braxton, Brooke, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Greenbrier, Hancock, Harrison, Jackson, Kanawha, Lewis, Lincoln, Logan, McDowell, Marion, Marshall, Mason, Mercer, Mingo, Monongalia, Monroe, Nicholas, Ohio, Pleasants, Putnam, Raleigh, Ritchie, Roane, Summers, Taylor, Tyler, Upshur, Wayne, Webster, Wetzel Wirt, Wood, Wyoming.

WISCONSIN.

Section I: Ashland, Barron, Bayfield, Buffalo, Burnett, Chippewa, Crawford, Douglas, Dunn, Eau Claire, Iron, Jackson, La Crosse, Pepin, Pierce, Polk, Price, Rusk, St. Croix, Sawyer, Taylor, Trempealeau, Vernon, Washburn.
Section II: Adams, Clark, Columbia, Dane, Dodge, Florence, Fond du Lac. Forest, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Lafayette, Langlade, Lincoln, Marathon, Marinette, Marquette, Monroe, Oconto, Oneida, Outagamie, Portage, Richland, Rock, Sauk, Shawano, Vilas, Walworth, Washington, Waukesha, Wampaca, Waushara, Winnebago, Wood.
City not included in counties, Green Bay.
Section III: Milwaukee.
Section IV: Brown, Calumet, Door, Kenosha, Kewaunee, Manitowoc, Ozankee, Racine, Sheboygan.
City not included in counties, Superior.

WYOMING.

Section I: Includes entire State.

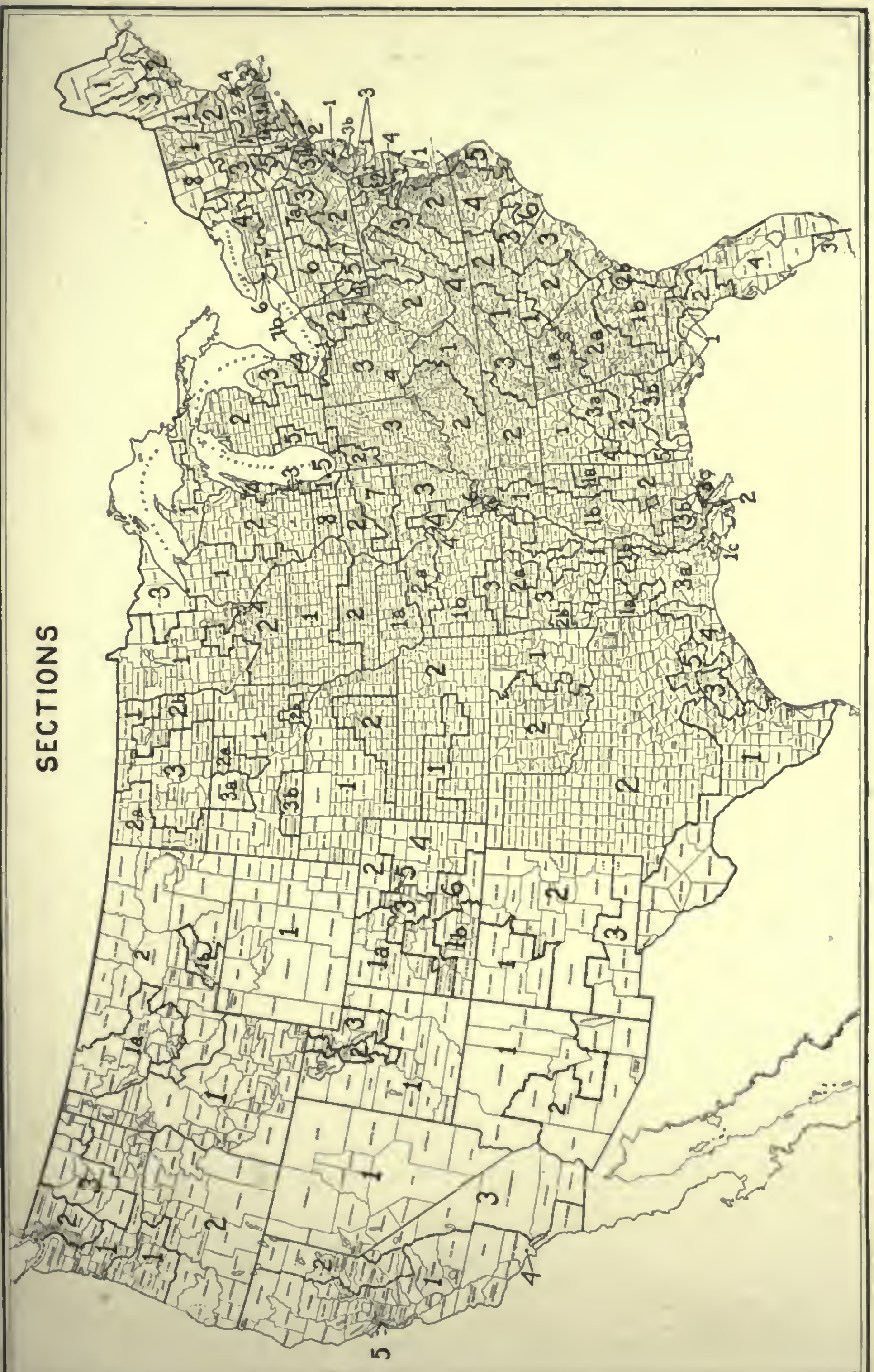


PLATE V.

TABLE 19.—*Consolidation of similar sections; the series and their constituent groups.*

Series I. The occupational series:
- Group 1. Agricultural, North, native white, 73 per cent.
- Group 2. Agricultural, North and West, mixed foreign and native white.
- Group 3. Agricultural, South, native white.
- Group 4. Agricultural, South, Negro, 45 per cent plus.
- Group 5. Eastern manufacturing.
- Group 6. Commuter.
- Group 7. Mining.

Series II. The physiographic series:
- Group 8. Sparsely settled, not more than 3 per square mile.
- Group 9. Desert.
- Group 10. Maritime.
- Group 11. Mountain.

Series III. The racial series:
- Group 12. Mountain whites.
- Group 13. Indian, sparsely settled.
- Group 14. Mexican, sparsely settled.
- Group 15. Native whites of Scotch origin.
- Group 16. Russian, 10 per cent plus.
- Group 17. Scandinavian, 10 per cent plus.
- Group 18. Finn, 10 per cent plus.
- Group 19. French Canadian, 10 per cent plus.
- Group 20. German and Scandinavian, 10 per cent plus.
- Group 21. German and Austrian, 20 per cent plus.
- Group 22. German and Austrian, 15 per cent plus.

TABLE 20.—*Consolidation of similar sections; the groups and their composition out of sections.*

Group 1. Agricultural, North, native white, 73 per cent:

Illinois	3	Ohio	3
Indiana	3	Pennsylvania	2
Iowa	2		

Group 2. Agricultural, North and West, mixed foreign and native white:

Colorado	4	New York	7
Illinois	8	Ohio	2
Indiana	2	Pennsylvania	6
Iowa	1	South Dakota	1
Kansas	2	Vermont	1
Michigan	2	Washington	1
Nebraska	2	Wisconsin	2
New Jersey	2		

Group 3. Agricultural, South, native white:

Alabama	3	North Carolina	2, 3, 6
Arkansas	2, 3	Oklahoma	1, 2
Kentucky	2	Tennessee	2
Louisiana	3	Texas	2, 4
Maryland	3	Virginia	3
Mississippi	2	West Virginia	2
Missouri	1, 3		

Group 4. Agricultural, South, Negro, 45 per cent plus:

Alabama	2, 4	North Carolina	4
Arkansas	1	South Carolina	2, 3
Georgia	2	Tennessee	1
Louisiana	1	Texas	5
Mississippi	1	Virginia	2

TABLE 20.—*Consolidation of similar sections; the groups and their composition out of sections*—Con.

Group 5. Eastern manufacturing:			
Connecticut	2	New York	3
Massachusetts	2	Ohio	1
New Hampshire	2	Pennsylvania	5
New Jersey	1	Rhode Island	1
Group 6. Commuter:			
Illinois	1	New York	1
New Jersey	1		
Group 7. Mining:			
Alabama	1	Montana	1
California	2	Nevada	1
Colorado	1, 3, 6	Pennsylvania	3, 4
Idaho	1	Utah	3
Group 8. Sparsely settled, not more than 3 per square mile:			
California	3	Oregon	2
Montana	2	Utah	1
Nevada	1	Wyoming	1
New Mexico	2		
Group 9. Desert:			
Arizona	2	New Mexico	2
Nevada	1		
Group 10. Maritime:			
Maine	2	North Carolina	5
Maryland	2, 4	Virginia	1
Massachusetts	3		
Group 11. Mountain:			
Arkansas	2	New Hampshire	1
Massachusetts	1	New York	5, 8
Missouri	3	Washington	3
Montana	1	Wyoming	1
Group 12. Mountain whites:			
Kentucky	1	Tennessee	3
North Carolina	1	Virginia	4
South Carolina	1	West Virginia	1
Group 13. Indian, sparsely settled:			
Arizona	1	Oklahoma	1
New Mexico	1	South Dakota	3
Group 14. Mexican, sparsely settled:			
Arizona	1, 2	Texas	1
New Mexico	3		
Group 15. Native whites of Scotch origin:			
Kentucky	2	North Carolina	3
Group 16. Russian, 10 per cent plus:			
Colorado	2	Pennsylvania	3
Kansas	1	South Dakota	2
North Dakota	3		
Group 17. Scandinavian, 10 per cent plus:			
Michigan	1	Utah	1, 2
Minnesota	1, 2, 3	Washington	2
North Dakota	1, 2, 3	Wisconsin	1, 2
South Dakota	1		

TABLE 20.—*Consolidation of similar sections; the groups and their composition out of sections*—Con.

Group 18. Finn, 10 per cent plus:			
Michigan	1	Minnesota	3
Group 19. French Canadian, 10 per cent plus:			
Maine	3	New Hampshire	1, 2
Massachusetts	2	Rhode Island	1
Group 20. German and Scandinavian, 10 per cent plus:			
Minnesota	1, 2	Wisconsin	1, 2
South Dakota	1		
Group 21. German and Austrian, 20 per cent plus:			
Illinois	1, 4	Minnesota	2
Indiana	1	Ohio	1
Group 22. German and Austrian, 15 per cent plus:			
Illinois	1, 4	New Jersey	1
Indiana	1	Ohio	1
Iowa	1	Pennsylvania	3, 5, 7
Minnesota	2	Wisconsin	1, 2, 4
Nebraska	1, 2		

10. AVERAGE STATURE OF RECRUITS FROM DIFFERENT SECTIONS.

For various purposes the country has been divided into 156 sections, on the basis of population. Table 21 gives the average stature of recruits from the different sections arranged in order of this stature. At the head of this table stands Section 1 of North Carolina, the sparsely populated mountainous area of that State. Here the stature is 68.67 inches (174.42 centimeters), being 1.18 inches above the average of the United States. This tall stature is practically the same as that given for 1,304 Scotch in general, namely, 174.6 centimeters. The reason for the exceptionally great stature of men from Section 1 of North Carolina is primarily that many are of Scotch origin. As is well known, North Carolina, especially the Cape Fear region, was settled by Scotch Presbyterians in the middle of the seventeenth century. Their descendants have penetrated to the higher regions of the Cape Fear River in Scotland County and many of them have settled in the mountain region of western North Carolina. It is probable that there has been something of a selection of the largest and hardiest of these Scotch to settle the mountain region. It appears also that in Section 2, comprising the intermediate part of North Carolina, the stature is very great, 68.26 inches. In Section 3, comprising a large proportion of native whites of Scotch origin, the stature is 68.24 inches, while in those parts of North Carolina which lie near the sea coast the population is only slightly above the average for the United States. Unfortunately, it is not possible to say what was the stature of men of North Carolina at the time of the Civil War because this State was one of those in secession and its statistics are not included in those of recruits of the northern Army. During the Civil War the greatest average stature was found in men from Kentucky and Tennessee. In the present table Section 1 of Kentucky (mountainous area, native whites), gives an average stature of 68.21 inches, which is 0.72 above the average of the whole United States, and Section 2 of Kentucky (agricultural area of the central and western part) has an average stature of 67.95, or nearly 0.5 inch above the mean of the whole United States. The mean stature for Kentucky, 68.02, is less than that given by Gould [2] (p. 95) for men from Kentucky and Tennessee—namely, 68.16.

TABLE 21.—*Mean height, by sections; sections arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits.*

States.	Section.	Characteristics of sections.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Average for United States			868,445	67.49	2.71	2.097	0.492
North Carolina	1	Sparsely populated mountainous area	2,738	68.67	2.55	2.056	.489
Arkansas	2	Large native white population, hill country.	1,559	68.64	2.60	2.050	.484
Missouri	3	Native white, Ozark region	1,139	68.63	2.48	2.080	.485
Texas	2	Sparsely settled, white	22,372	68.50	2.60	2.080	.480
Do	5	Large Negro population	1,346	68.46	2.65	2.110	.487
Do	3	German and Negro population	1,415	68.45	2.61	2.110	.488
Minnesota	1	Scandinavian population	6,461	68.44	2.54	2.170	.495
Mississippi	2	Rural area, large native white population.	3,394	68.44	2.66	2.070	.480
Tennessee	3	Mountainous region	5,900	68.43	2.51	2.050	.481
Oklahoma	2	Chiefly white population	10,958	68.37	2.57	2.090	.485
Kansas	1	Russian population	1,067	68.30	2.57	2.122	.486
Tennessee	2	Agricultural region	6,308	68.29	2.60	2.040	.484
North Carolina	2	Intermediate	4,309	68.26	2.57	2.066	.486
Do	3	Native white of Scotch origin	2,053	68.24	2.72	2.074	.485
Arkansas	3	Large native white population	3,607	68.22	2.64	2.063	.485
California	3	Sparsely populated	2,108	68.21	2.53	2.116	.490
Kentucky	1	Mountainous area, native white	4,033	68.21	2.51	2.051	.486
Nebraska	2	German, Austrian, and Russian stocks	3,145	68.21	2.59	2.136	.489
Alabama	3	Large native white population	2,670	68.21	2.74	2.062	.484
Washington	3	Mountainous area	1,539	68.19	2.56	2.142	.493
Texas	1	Large Mexican population	6,676	68.19	2.70	2.080	.487
South Carolina	1	Native white	1,564	68.19	2.83	2.060	.484
Kansas	2	Native and German population	8,505	68.18	2.54	2.105	.488
Arizona	2	Chiefly white population	2,823	68.17	2.61	2.096	.487
Montana	2	Sparsely settled, mountainous area	6,531	68.17	2.57	2.150	.493
Illinois	6	Negro population (Egypt)	409	68.16	2.38	2.043	.482
Oklahoma	1	Marked Indian and Negro population	8,471	68.16	2.59	2.078	.485
Utah	1	Sparsely populated	1,224	68.16	2.64	2.114	.492
Alabama	4	Large Negro population	669	68.16	2.61	2.115	.486
Alaska	All.	Undivided	106	68.15	2.30	2.208	.493
Mississippi	1	Rural area, large Negro population	5,149	68.15	2.67	2.120	.488
Minnesota	2	German and Scandinavian population	7,601	68.14	2.63	2.170	.497
Virginia	4	Mountain, white	5,512	68.14	2.54	2.055	.489
Oregon	2	Columbia River Valley and coastal dry plain, sparsely populated.	1,077	68.13	2.52	2.140	.490
South Dakota	3	Indian population	247	68.13	2.41	2.180	.495
Wisconsin	1	Scandinavian and German population	3,297	68.13	2.66	2.130	.494
Colorado	3	English population	381	68.12	2.66	2.086	.487
Indiana	2	Agricultural, considerable German	837	68.12	2.48	2.120	.491
Virginia	3	Native rural region	3,866	68.12	2.73	2.066	.489
Idaho	All.	State undivided	4,034	68.10	2.57	2.133	.495
Missouri	2	Mississippi bottoms, considerable Negro population.	3,448	68.10	2.63	2.090	.486
Iowa	1	Foreign white, German and Scandinavian.	12,139	68.09	2.56	2.139	.492
Missouri	1	Native white, agricultural	13,588	68.09	2.59	2.080	.486
Texas	4	Coastal native population	2,722	68.09	2.70	2.090	.487
Georgia	1	Mixed population, native white predominating.	10,248	68.08	2.63	2.064	.486
Oregon	1	Fairly densely populated	2,748	68.08	2.61	2.153	.492
South Dakota	1	Dry farming area	3,051	68.07	2.68	2.160	.492
Tennessee	1	Negroes, Mississippi bottoms	2,218	68.07	2.59	2.090	.483
Colorado	1	Large native white population	1,056	68.06	2.79	2.081	.489
Arkansas	1	Negro, Mississippi bottoms	4,945	68.05	2.68	2.083	.487
Colorado	4	Prevailingly agricultural	1,227	68.05	2.70	2.087	.486
North Dakota	2	Scandinavian population	3,307	68.03	2.48	2.159	.497
Arizona	1	Large Indian population, sparsely settled.	1,027	68.02	2.73	2.106	.489
Nebraska	1	German and Irish, foreign stocks	7,629	68.02	2.69	2.120	.488
Washington	1	Coastal region plus eastern counties	5,176	68.01	2.60	2.139	.492
West Virginia	1	Mountainous area	1,507	67.98	2.71	2.072	.488
Alabama	1	Mining and manufacturing area	8,841	67.97	2.67	2.071	.484
Iowa	2	Native white	7,401	67.96	2.61	2.106	.488
Alabama	2	Large Negro population	3,327	67.95	2.71	2.098	.489
Kentucky	2	Agricultural area	11,469	67.95	2.62	2.060	.484
South Dakota	2	Large Russian population	594	67.92	2.53	2.170	.495

TABLE 21.—*Mean height, by sections; sections arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits*—Continued.

States.	Section.	Characteristics of sections.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Georgia	2	Large Negro population	10,078	67.91	2.66	2.077	0.490
Louisiana	3	Rural, chiefly white population	5,235	67.89	2.69	2.064	.488
New Mexico	3	Noteworthy Mexican element	540	67.89	2.73	2.048	.480
North Dakota	3	Russian population	2,005	67.87	2.61	2.172	.496
Washington	2	Puget Sound, foreign white	6,601	67.87	2.70	2.140	.492
Illinois	7	Agricultural area	5,442	67.86	2.58	2.092	.499
Do	3	Agricultural area, native	8,928	67.86	2.59	2.094	.487
West Virginia	2	Agricultural region	10,860	67.85	2.70	2.087	.491
Indiana	3	Agricultural area, native stock	18,743	67.84	2.56	2.083	.487
Colorado	2	Russian population	1,105	67.83	2.67	2.094	.490
Minnesota	4	Urban area, "Twin Cities"	9,759	67.83	2.63	2.130	.489
Nevada	All.	State undivided	1,441	67.83	2.69	2.143	.497
Montana	1	Mining area, foreign population	5,117	67.82	2.65	2.150	.491
Wisconsin	2	German population	7,685	67.82	2.58	2.140	.495
Alabama	5	Urban and suburban area	481	67.81	2.56	2.066	.483
North Carolina	4	Large Negro population	4,570	67.79	2.72	2.097	.489
Wyoming	All.	State undivided	1,927	67.79	2.63	2.130	.492
Illinois	8	Agricultural and manufacturing area	2,451	67.77	2.63	2.110	.493
California	1	Chiefly agricultural area	17,793	67.75	2.68	2.137	.494
Ohio	3	Agricultural area	17,606	67.75	2.59	2.085	.489
Utah	2	More densely populated	2,781	67.75	2.56	2.105	.485
Louisiana	1	Mississippi bottoms and upland, large Negro population.	4,074	67.73	2.63	2.073	.491
North Carolina	6	Remainder of State	744	67.73	2.63	2.076	.489
South Carolina	2	Large Negro population	3,975	67.72	2.77	2.100	.490
California	4	Urban area	7,428	67.71	2.64	2.099	.487
Do	2	Mining area	943	67.69	2.64	2.154	.499
Florida	1	More white and maritime	2,486	67.69	2.67	2.050	.486
North Carolina	5	Island and peninsular area	254	67.69	2.61	2.087	.491
Florida	2	More Negro and rural population	996	67.69	2.63	2.070	.490
Colorado	5	Urban population	1,644	67.68	2.69	2.070	.485
North Dakota	1	Scandinavian and Canadian population	1,132	67.67	2.56	2.159	.498
Colorado	6	Austrian and Italian population	1,222	67.65	2.71	2.060	.484
Minnesota	3	Scandinavians and Finns	3,520	67.65	2.66	2.170	.502
Utah	3	Mining area	563	67.65	2.78	2.127	.494
Michigan	2	Prevailingly native white population	12,567	67.63	2.55	2.100	.493
District of Columbia.	All.	Undivided	4,493	67.63	2.65	2.077	.482
Maine	2	Native white stock, maritime	828	67.60	2.59	2.091	.497
Illinois	4	Largely German population	4,238	67.59	2.64	2.115	.494
Do	2	Mixed native and foreign population	7,803	67.59	2.60	2.114	.494
Michigan	5	Dutch and other foreign population	2,892	67.51	2.65	2.090	.491
Missouri	4	Urban area	6,789	67.49	2.63	2.080	.488
Virginia	2	Large Negro population	5,352	67.46	2.72	2.077	.490
New York	7	Agricultural and dairying	6,465	67.45	2.64	2.098	.496
Florida	4	Peninsular	2,340	67.44	2.57	2.069	.491
Illinois	1	Densely populated	6,303	67.43	2.67	2.123	.495
New Mexico	2	Native white population	1,857	67.43	2.85	2.049	.493
Michigan	3	Foreign population	6,298	67.40	2.62	2.110	.497
Wisconsin	4	Lake counties	2,890	67.39	2.57	2.140	.500
Ohio	4	Urban area	3,557	67.39	2.90	2.104	.489
Maryland	2	Peninsular area	1,068	67.37	2.69	2.080	.490
Pennsylvania	6	Rural area	8,616	67.37	2.90	2.099	.494
Virginia	1	Peninsular region and east shore	2,886	67.34	2.73	2.091	.487
South Carolina	3	Peninsular and rural areas	3,804	67.33	2.64	2.060	.491
Ohio	2	Intermediate	14,443	67.31	2.74	2.096	.491
California	5	Urban area	7,189	67.28	2.61	2.137	.495
Maine	1	English Canadian	1,240	67.28	2.59	2.110	.497
Maryland	3	Large white population	2,683	67.26	2.48	2.090	.496
New Mexico	1	Indian population	293	67.26	2.90	2.068	.494
New Hampshire	1	Mountainous area	665	67.25	2.54	2.106	.501
Indiana	1	Manufacturing	3,614	67.22	2.64	2.113	.497
Florida	3	Cuban, Spanish, West Indian population.	84	67.21	2.60	2.026	.487
Delaware	All.	State undivided	1,894	67.19	2.61	2.075	.492
New York	5	Mountainous, Catskill region	795	67.16	2.69	2.074	.493
Vermont	All.	State undivided	2,077	67.12	2.52	2.091	.498
Michigan	1	Finnish population	2,344	67.10	2.61	2.160	.501
Illinois	5	Urban area	33,919	67.09	2.67	2.099	.495
Maine	3	French Canadian population	1,247	67.07	2.58	2.080	.495
New York	8	Mountainous, Adirondack area	2,990	67.06	2.64	2.090	.497
Ohio	1	Dense foreign population	17,208	67.06	2.67	2.111	.495
New York	4	Western manufacturing region	14,222	67.01	2.67	2.096	.495
Wisconsin	3	Urban and foreign stock	4,527	66.99	2.56	2.100	.497
New York	6	Urban area	6,544	66.95	2.66	2.126	.498
Massachusetts	4	.....do	8,587	66.94	2.64	2.090	.494
Louisiana	2	.....do	3,047	66.93	2.66	2.056	.487
Maryland	1	.....do	5,441	66.93	2.69	2.100	.493
Massachusetts	3	Peninsular region	1,127	66.90	2.70	2.070	.491

TABLE 21.—*Mean height, by sections; sections arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits*—Continued.

States.	Section.	Characteristics of sections.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
New York	3	Eastern manufacturing region	5,150	66.87	2.66	2.092	0.498
New Hampshire	2	Manufacturing area	1,581	66.86	2.61	2.081	.493
Massachusetts	1	Mountainous area	1,373	66.85	2.67	2.070	.492
Michigan	4	Urban area	17,771	66.84	2.61	2.110	.496
New Jersey	3	Mountainous area plus Atlantic County	3,196	66.84	2.76	2.082	.501
Do	2	Plains section, rural	8,985	66.83	2.70	2.078	.499
Pennsylvania	4	Coal mining	4,827	66.80	2.69	2.109	.496
Connecticut	2	Manufacturing area	8,708	66.73	2.73	2.096	.499
Pennsylvania	2	Rural area, native stock	14,218	66.73	2.62	2.095	.497
New Jersey	1	Densely populated	17,795	66.72	2.74	2.078	.497
Connecticut	1	Prevailingly agricultural and near metropolitan.	4,877	66.67	2.68	2.094	.503
Massachusetts	2	Manufacturing center	18,447	66.67	2.67	2.070	.497
Pennsylvania	7	Allegheny County plus a small rural area	17,243	66.67	2.65	2.093	.495
Do	5	Manufacturing	8,892	66.66	2.69	2.116	.497
New York	1	Suburban territory	4,934	66.65	2.76	2.091	.497
Pennsylvania	1	Urban area	16,085	66.62	2.65	2.065	.494
Do	3	Mining area	7,305	66.55	2.57	2.105	.500
New York	2	Urban area densely populated	46,718	66.46	2.77	2.084	.498
Rhode Island	All.	State undivided	3,928	66.40	2.61	2.060	.494

To return to Table 21, the second entry from the top is Arkansas, Section 2. This section comprises about 97 per cent "native whites of native parentage"; that is, the old American southern white stock that lives in the hill country of northwestern Arkansas. The third section in order is Missouri 3, which included native whites of the Ozark region, a region practically contiguous with Arkansas 2, and composed of the same sort of men. In this section about 95 per cent of the population are of old white American stock, and fewer than 3 per thousand are Negroes. As has often been remarked, there is great resemblance in the general constitution of the population of the Ozark region in Missouri to that of the mountains of Kentucky and Tennessee.

The next three sections are in Texas, and two of these contain a considerable Negro population. As already pointed out, the proportion of immigrants from southeastern Europe in Texas is negligible. The State was settled chiefly by the tall southern stock. Next on the table comes Minnesota, Section 1. This comprises the northern counties, with prevailingly Scandinavian population. We have already seen from the table of statures, page 68, that the Scandinavians are among the tallest races of Europe. This characcertistic they have carried with them into Minnesota and have transmitted to their sons.

In the upper part of the table one finds certain other sections of interest, such as the mountain region of Tennessee (Section 3), the State of Oklahoma in general, recently populated by a selected lot of whites; Arkansas in general, including sections with a prevailingly white population; Kansas, both sections, with the prevailingly native, German, and Mennonite Russian population; Section 6 in the State of Illinois, so-called "Egypt," with a prevailingly Negro population; and in general, those sections of the Southern States which have a large Negro population.

The bottom of the table is occupied by Rhode Island. The reason for this has already been pointed out. It is the presence of short races, Italian, French Canadians, and Portuguese. Next to the bottom comes Section 2 of New York, comprising Greater New York, the most densely populated part of the Western Hemisphere. Here the mean stature is 66.46, or approximately 1 inch below the average for the United States. This low average stature of Greater New York is associated with a very high standard deviation, namely, 2.77. This indicates, as common observation confirms, that the stature of the population is exceptionally variable, comprising tall elements, selected from the most vigorous representatives of the northwestern and western races of Europe, including many of German and British stock, and, on the other hand, a very large proportion of representatives of the shortest races of Europe: Polish Jews, South Italians, and Greeks. The preponderance of the short races has resulted in bringing the average stature well toward the bottom of the list. The third section from the bottom is Pennsylvania 3. This comprises certain mining counties in the eastern part of the State. In the census of 1910 these included 4 per cent Italians, 21 per cent Austrians and Russians, 2.3 per cent Hungarians, and 42.5 per cent native whites of native parentage. The whites of native parentage were, however, in turn largely descended from the short races. Fourth from the bottom lies Pennsylvania 1, Philadelphia. This city comprises over 10 per cent Austrians and Russians (largely Jews), 5 per cent Italians, and only 37 per cent native whites of native parentage. Philadelphia approximates New York City in its possession of a large mixture of southeastern and eastern Europeans, and hence tends to fall near the bottom of the list. The next section is that of New York 1, which includes territory surrounding Greater New York, and whose population naturally is largely influenced by conditions in the great city. Then come certain manufacturing and mining populations. Next comes Massachusetts 2, a manufacturing center of that State outside of Boston. Reasons similar to those cited above account for the low position in the table of Section 1 of Connecticut and Section 1 of New Jersey (being densely populated portions of the State adjacent to Greater New York), and all other sections in Connecticut, Pennsylvania, and New Jersey. Michigan 4 comprises Detroit, and Section 2 of New Hampshire includes the manufacturing area of that State along the Merrimac River. The remaining sections of the table are those in which the population is less strikingly selected for great or small height or in which no great mixture of statures occurs.

In examining the table more generally, we find that there are very few sections with a large Negro population in which the stature is below the average. In fact, Virginia 2 is the only instance of this kind. On the other hand, there are relatively few mining areas in which the population is markedly above the average. The most striking of these are Alabama 1, the population tributary to Birmingham, which consists almost exclusively of native whites, 72 per cent, and Negroes, 26 per cent. Another instance is Montana 1 (67.82 inches), in which the foreign population is largely Irish and Scandinavian. California 2, with an average stature of 67.69 inches, has a high proportion of native whites of native parentage (47 per cent) and many English, Irish, and German, together with some Italians. In Utah 3, with a mean stature of 67.65 inches, the mining population included a large proportion of English. These have doubtless migrated into the mining region from the more densely populated part of the State which has attracted to itself, through Mormon proselytizing, many representatives of the English and Scandinavian peoples. Those sections that include a large proportion of Germans and Scandinavians naturally lie in the upper part of the table. The great cities lie prevailingly in the lower part of the table, not because city life tends to stunt growth but because cities attract the people from southeastern Europe, who remain in them instead of going upon the farms. On the other hand, the agricultural areas are occupied by persons of tall stature because the small races of southeastern Europe do not go to them in large numbers, whereas Scandinavians and many of the Germans do. Some of these conclusions will be strengthened and new ones will be gained by a study of the groups of similar sections shown in Table 22.

11. HIGH AND LOW STANDARD DEVIATIONS IN THE DIFFERENT SECTIONS.

Table 21 gives the standard deviation in stature for each section. For the United States as a whole the standard deviation in stature is 2.71 inches. Some of the highest standard deviations are: Ohio 4 (Cincinnati), 2.90; Pennsylvania 6 (a rural area in the northwestern part of the State), 2.90; New Mexico 1 (including many tuberculous whites, and also Indians and Mexicans), 2.90; New Mexico 2 (with more whites, but also Mexicans and Indians), 2.85; South Carolina 1 (mountain whites, but also a large colored population), 2.83. High variability is found in many large cities and suburban areas, for the reason suggested above; e. g., New York 2 (New York City), 2.77; New Jersey 1 (suburban), 2.74; New York 1 (suburban), 2.76. Low variabilities are found in Alaska, 2.30; Illinois 6 (31 per cent Negro), 2.38; South Dakota 3 (87 per cent Indian), 2.41; Missouri 3 (the Ozark region, with 94 per cent whites, prevailingly tall), 2.48. Low variability implies homogeneity in the population; high variability, heterogeneity.

12. MEAN STATURE, BY GROUPS OF SIMILAR SECTIONS.

In Table 22 and Table IV the different sections are grouped so as to bring together those which have certain points of similarity. The mean stature and standard deviation have been worked out for these groups. The groups are arranged in order of the average stature. At the top of the list lies the group of mountain whites (group 12), including sections from the States of Kentucky, North and South Carolina, Tennessee, Virginia, and West Virginia. The average stature of men from these sections is 68.29, which is 0.8 inch above the average for the whole United States. Since these sections, except South Carolina, have a small proportion (less than 10 per cent) of Negroes, their exceptionally high average stature depends upon the physique of the mountain whites. These mountain whites, as pointed out, are, in the case of North Carolina and Kentucky, largely of Scotch origin. In the other States it is probable that there is a large mixture of Scotch and also some of the best physically developed of the stock that originally settled Virginia. The group is characterized by small variability, indicating that the population is fairly homogeneous in origin. The largest variability is found in South Carolina 1, in which the Negro element constitutes 31 per cent. The smallest variability (2.51) is found in the mountain whites of Kentucky, comprising the smallest proportion of Negroes, 2.5 per cent.

The second group (group 3) in rank is that of the agricultural areas of the South that comprise a rather small proportion of Negroes. The proportion varies, however, in the different sections from 0.7 to 47.3 per cent. The average stature of this group is 68.18 inches, and all but one representative of this group are markedly above the average for the whole United States. The exception is Maryland 3, in the western part of the State, including nearly 75 per cent native whites and almost entirely native-born Americans. The variability of the group is low, namely, 2.64, as contrasted with 2.71 for the whole United States. The other sections obviously comprise exceptionally tall white men, and this is because of the racial stock which settled Alabama, Arkansas, North Carolina, Virginia, Kentucky, Tennessee, and Texas. They seem to have been a taller lot than settled New England. This can not be inferred from present day statistics, because of the recent immigrants, but from the statistics of the Civil War. According to Gould[2] (p. 125), the stature of native-born volunteers from New Hampshire was only 67.93; Vermont, 67.88; Rhode Island and Connecticut, 67.43; New York, 67.42; and Massachusetts, 67.41. To northern eyes, even at the time of the Civil War, southern whites appeared tall and lank.

The third section (group 14) in order includes four sparsely settled sections near the Mexican border. One of these includes 17 per cent Mexicans, another 14 per cent, the others less. The highest average stature is found in Texas 1, which comprises 17 per cent Mexicans. These are largely of Indian stock and the tall stature is no doubt due to the infusion of Indian blood. This appears also in the next group (group 13) of sections selected because of their large Indian population. In South Dakota 3, with 87 per cent of Indians, the average stature is 68.13, or 0.64 inch above the average.

The next group (group 20) in point of stature includes certain agricultural areas of the North, with a large German and Scandinavian population. The average stature of this group is 68.11, or 0.62 inch above the average for the whole United States. The tallest men are found in Minnesota 1, which includes 37 per cent of Scandinavians.

The next group (group 8) includes seven sparsely settled sections, mostly of the Southwest, excepting two sections of Wyoming and Oregon. In this group the average stature is 68.01, or 0.52 inch above the average. These sections include a large sprinkling of Indians and a very small percentage of recent immigrants.

The next group (group 15) includes two sections of native white persons of Scotch origin. In this group the mean height is about 0.5 inch above the average for the United States. Next comes a group (group 17) which includes a number of sections characterized by having 10 per cent or more Scandinavians. In this the mean height is 67.96, or 0.47 inch above the average. The tallest section is Minnesota 1, already referred to in another connection, with its mean stature of 68.44 inches. The next tallest section is Utah 1, including over 10 per cent Scandinavians and 8 per cent English, with a mean height of 68.16. The shortest people of this group are found in Michigan 1, 67.10 inches, which includes a large Finnish population, and this helps to pull down the average.

The next group (group 9) includes three desert sections whose population includes many white people from other sections who suffer from tuberculosis. The average for the whole group is 67.86 inches, which is 0.37 inch above the average for the whole United States. Arizona 2, which includes Tucson, gives the tallest men of this group, 68.17 inches.

Passing now to the bottom of the table, we find that those sections in which the French Canadians (group 19) constitute 10 per cent or more of the population form the group with the least mean height, 66.67, or 0.82 inch below the average for the whole United States. Of these sections, Rhode Island, with 11.4 per cent French Canadians and a large number of Portuguese, is the shortest.

The next taller group (group 5) is the eastern manufacturing group, in which the mean height is 66.77, or 0.72 inch below the average. The sections of this group are characterized by a large proportion of the short races of southeastern Europe.

Next comes the group (group 6) including commuters. The sections of this group lie adjacent to the large manufacturing cities of the East and partake of many characteristics of their population.

The next taller group (group 16) is that which contains sections made up of about 10 per cent or more Russians. These are largely Russian Mennonites, chiefly engaged in mining. The section with the shortest stature is that of Pennsylvania 3, including a large mining population, while the tallest is Kansas 1, with 13 per cent Russians, engaged in agricultural pursuits. The differences in the stature of these populations are due chiefly to the difference in stature of the associated peoples.

Next above comes the group (group 22) in which the German and Austrian part of the population constitutes more than 15 per cent of the whole. Here the average stature is 67.27 inches, or only 0.22 inch below the average of all. When we select just those sections in which the Germans and Austrians constitute 20 per cent or more, the average stature, 67.41 inches, approaches still more closely the average stature of the whole country.

The mining group (group 7) comprises a population with just exactly the average stature of the whole United States and with a variability the same as that of the whole United States. The mining sections are for the most part regions of great admixture of various foreign nationalities.

It is noteworthy that those agricultural areas of the South which comprise 45 per cent or more of Negroes (group 4) have a shorter average stature than those agricultural areas of the South in which the proportion of Negroes is less. Since there is little difference in the average stature of white and colored, this result is to be ascribed to the fact that in the sections inhabited by the taller white man, there are fewer Negroes than in other sections of the South.

TABLE 22.—*Mean height, by groups of sections; groups arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also the standard deviation for each height; first million draft recruits.*

[From Table IV, p. 427.]

[Height and chest in inches, and weight in pounds.]

Group No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
			Inches.	*Inches.*	*Pounds.*	*Inch.*
	Average for the United States	868,445	67.49	2.01	2.097	0.492
12	Mountain whites	21,254	68.29	2.57	2.05	.4862
3	Agricultural, native white, South	117,890	68.18	2.64	2.07	.4854
14	Mexican, sparsely settled	11,064	68.16	2.69	2.09	.4874
13	Indian, sparsely settled	10,038	68.12	2.61	2.08	.4864
20	German and Scandinavian, over 10 per cent	28,095	68.11	2.62	2.15	.4951
8	Sparsely settled, not more than 3 per square mile	16,165	68.01	2.63	2.13	.4929
15	Native whites of Scotch origin	13,522	68.00	2.64	2.06	.4844
17	Scandinavian, 10 per cent	51,009	67.96	2.63	2.15	.4952
9	Desert	6,121	67.87	2.72	2.09	.4917
4	Agricultural Negroes, 45 per cent plus	49,506	67.82	2.68	2.09	.4894
11	Mountain	17,101	67.72	2.68	2.11	.4921
2	Agricultural, mixed, foreign—native white	97,340	67.62	2.66	2.11	.4934
1	Agricultural, native white, North, native white over 73 per cent, North	66,885	67.60	2.63	2.09	.4900
7	Mining	35,730	67.49	2.72	2.11	.4929
18	Finn, 10 per cent	5,864	67.43	2.65	2.16	.5016
21	German and Austrian, over 20 per cent	38,962	67.41	2.69	2.13	.4955
10	Maritime	6,161	67.31	2.70	2.09	.4903
22	German and Austrian, over 15 per cent	126,994	67.27	2.72	2.12	.4954
16	Russian, 10 per cent plus	12,076	67.11	2.68	2.12	.4976
6	Commuter	29,032	66.86	2.75	2.09	.4970
5	Eastern manufacturing	81,718	66.77	2.70	2.09	.4970
19	French Canadian, 10 per cent	25,862	66.67	2.65	2.07	.4966

TABLE 23.—*Height distribution shown by groups of sections, first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Group No.	Description.	Number measured.	Height, in inches. 59 and under.	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79 and over.
1	Agricultural, North, native white over 73 per cent	66,885	245	178	418	975	2,082	3,706	5,989	8,415	10,181	10,444	8,956	6,709	4,254	2,456	1,109	472	154	79	22	15	26
2	Foreign and native white	97,338	313	297	667	1,420	3,028	5,524	8,680	12,255	14,468	15,014	12,802	9,828	6,468	3,599	1,737	718	294	114	38	29	45
3	Agricultural, native white, South	117,548	316	235	510	997	2,311	4,436	8,243	12,605	16,212	18,685	17,469	14,170	9,857	6,007	3,109	1,358	588	247	75	59	59
4	Agricultural, Negroes, 45 per cent plus	49,503	166	132	284	632	1,311	2,440	4,133	5,951	7,093	7,726	6,840	5,226	3,573	2,106	1,103	440	193	69	31	21	33
5	Eastern manufacturing	81,718	395	425	1,161	2,548	4,541	6,967	9,681	11,791	12,171	11,047	8,613	5,779	3,452	1,797	798	336	118	51	13	15	19
6	Commuters	29,032	173	164	421	868	1,570	2,292	3,338	4,079	4,182	4,075	3,118	2,158	1,314	720	327	143	59	15	7	3	6
7	Mining	35,730	123	121	319	615	1,259	2,148	3,384	4,733	5,263	5,205	4,504	3,409	2,307	1,254	620	250	120	49	21	14	12
8	Sparsely settled, not more than 3 per square mile	16,165	36	28	66	185	352	718	1,277	1,796	2,312	2,563	2,281	1,849	1,318	734	355	164	82	25	10	7	7
9	Desert	6,121	22	12	35	91	159	302	505	716	888	894	861	648	449	288	141	66	25	12	2	3	2
10	Maritime	6,161	33	28	63	114	243	369	621	827	940	904	752	594	325	205	78	38	17	5	2	3	......
11	Mountain	17,099	55	47	119	260	477	858	1,537	2,071	2,577	2,564	2,271	1,763	1,224	703	336	135	59	19	10	8	6
12	Mountain whites	21,254	55	34	60	135	340	777	1,394	2,087	3,014	3,480	3,165	2,690	1,909	1,117	579	238	108	44	16	5	7
13	Indians, sparsely settled	10,038	29	11	40	92	210	396	712	1,103	1,427	1,629	1,411	1,225	845	482	239	104	52	16	3	7	5
14	Mexicans, sparsely settled	10,779	30	17	48	110	241	456	799	1,128	1,473	1,647	1,402	1,413	889	619	293	119	61	22	2	7	3
15	Whites of Scotch origin (natives)	13,522	42	41	69	138	295	587	1,019	1,495	1,947	2,151	1,982	1,552	1,045	626	299	136	53	27	7	1	10
16	Russian, 10 per cent plus	12,076	51	55	136	253	527	863	1,313	1,769	1,813	1,784	1,311	986	632	317	157	63	25	6	8	1	6
17	Scandinavian, 10 per cent	51,009	171	95	236	525	1,174	2,250	3,892	5,941	7,441	8,163	7,279	5,755	3,809	2,254	1,138	526	217	70	30	19	24
18	Finn, 10 per cent	5,864	15	23	46	103	216	363	567	759	874	889	768	547	361	180	83	41	23	3	1	1	1
19	French Canadian, 10 per cent	25,862	101	112	376	845	1,532	2,321	3,210	3,840	3,833	3,478	2,581	1,732	1,036	508	217	76	31	16	4	6	7
20	Germans and Scandinavians, 10 per cent plus	28,095	103	53	108	214	549	1,104	1,967	3,141	4,034	4,590	4,116	3,311	2,215	1,372	674	318	126	46	21	14	19
21	Germans and Austrians, 20 per cent plus	38,962	197	110	332	695	1,416	2,358	3,806	5,138	5,954	5,865	4,949	3,525	2,200	1,359	609	261	104	38	16	11	19
22	Germans and Austrians, 15 per cent plus	126,994	553	531	1,306	2,649	5,143	8,493	12,958	16,913	19,021	18,657	15,275	11,184	7,045	4,041	1,858	821	314	104	54	32	42
	Total	867,755	3,224	2,749	6,820	14,464	28,976	49,728	79,025	108,553	127,118	131,454	112,706	86,053	56,527	32,744	15,859	6,823	2,823	1,077	393	281	358

SECTION B: RATIOS PER 1,000.

Group No.	Description.	Number measured.	Height, in inches.																				Total.
			59 and under.	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79 and over.	
1	Agricultural, North, native white over 73 per cent	66,885	3.66	2.66	6.25	14.58	31.13	55.41	89.54	125.81	152.22	156.15	133.90	100.31	63.60	36.72	16.58	7.06	2.30	1.18	0.33	0.22	0.39	1,000
2	Foreign and native white	97,338	3.22	3.05	6.85	14.59	31.11	56.75	89.17	125.90	148.64	154.25	131.52	100.97	66.45	36.97	17.85	7.38	3.02	1.17	.39	.30	.46	1,000
3	Agricultural, native white, South	117,548	2.69	2.00	4.34	8.48	19.66	37.74	70.12	107.23	137.92	158.96	148.61	120.55	83.86	51.10	26.45	11.55	5.00	2.10	.64	.50	.50	1,000
4	Agricultural, Negroes, 45 per cent plus	49,503	3.35	2.67	5.74	12.77	26.48	49.29	83.49	120.21	143.28	156.07	138.17	105.57	72.18	42.54	22.28	8.89	3.90	1.39	.63	.42	.67	1,000
5	Eastern manufacturing	81,718	4.83	5.20	14.21	31.18	55.57	85.26	118.47	144.29	148.94	135.18	105.40	70.72	42.24	21.99	9.77	4.11	1.44	.62	.16	.18	.23	1,000
6	Commuters	29,032	5.96	5.65	14.50	29.90	54.08	78.95	114.98	140.50	144.05	140.36	107.40	74.33	45.26	24.80	11.26	4.93	2.03	.52	.24	.10	.21	1,000
7	Mining	35,730	3.44	3.39	8.93	17.21	35.24	60.12	94.71	132.47	147.30	145.68	126.06	95.41	64.57	35.10	17.35	7.00	3.36	1.37	.59	.39	.34	1,000
8	Sparsely settled, not more than 3 per square mile	16,165	2.23	1.73	4.08	11.44	21.78	44.42	79.00	111.10	143.03	158.55	141.11	114.38	81.53	45.41	21.96	10.15	5.07	1.55	.62	.43	.43	1,000
9	Desert	6,121	3.59	1.96	5.72	14.87	25.98	49.34	82.50	116.97	145.07	146.05	140.66	105.87	73.35	47.05	23.04	10.78	4.08	1.96	.33	.49	.33	1,000
10	Maritime	6,161	5.36	4.54	10.23	18.50	39.44	59.89	100.80	134.23	152.57	146.73	122.06	96.41	52.75	33.27	12.66	6.17	2.76	.81	.32	.49	......	1,000
11	Mountain	17,099	3.22	2.75	6.96	15.21	27.90	50.18	89.89	121.12	150.71	149.95	132.81	103.11	71.58	41.11	19.65	7.90	3.45	1.11	.58	.47	.35	1,000
12	Mountain whites	21,254	2.59	1.60	2.82	6.35	16.00	36.56	65.59	98.19	141.81	163.73	148.91	126.56	89.82	52.55	27.24	11.20	5.08	2.07	.75	.24	.33	1,000
13	Indians, sparsely settled	10,038	2.89	1.10	3.98	9.17	20.92	39.45	70.93	109.88	142.16	162.28	140.57	122.04	84.18	48.02	23.81	10.36	5.18	1.59	.30	.70	.50	1,000
14	Mexicans, sparsely settled	10,779	2.78	1.58	4.45	10.21	22.36	42.30	74.13	104.65	136.65	152.80	130.07	131.09	82.48	57.43	27.18	11.04	5.66	2.04	.19	.65	.28	1,000
15	Whites of Scotch origin (natives)	13,522	3.11	3.03	5.10	10.21	21.82	43.41	75.36	110.56	143.99	159.07	146.58	114.78	77.28	46.29	22.11	10.06	3.92	2.00	.52	.07	.74	1,000
16	Russians, 10 per cent plus	12,076	4.22	4.55	11.26	20.95	43.64	71.46	108.73	146.49	150.13	147.73	108.56	81.65	52.34	26.25	13.00	5.22	2.07	.50	.66	.08	.50	1,000
17	Scandinavians, 10 per cent	51,009	3.35	1.86	4.63	10.29	23.02	44.11	76.30	116.47	145.88	160.03	142.70	112.82	74.67	44.19	22.31	10.31	4.25	1.37	.59	.37	.47	1,000
18	Finns, 10 per cent	5,864	2.56	3.92	7.84	17.56	36.83	61.90	96.69	129.43	149.05	151.60	130.97	93.28	61.56	30.70	14.15	6.99	3.92	.51	.17	.17	.17	1,000
19	French Canadians, 10 per cent	25,862	3.91	4.33	14.54	32.67	59.24	89.75	124.12	148.48	148.21	134.48	99.80	66.97	40.06	19.64	8.39	2.94	1.20	.62	.15	.23	.27	1,000
20	Germans and Scandinavians, 10 per cent plus	28,095	3.67	1.89	3.84	7.62	19.54	39.30	70.01	111.80	143.58	163.37	146.50	117.85	78.84	48.83	23.99	11.32	4.48	1.64	.75	.50	.68	1,000
21	Germans and Austrians, 20 per cent plus	38,962	5.06	2.82	8.52	17.84	36.34	60.52	97.68	131.87	152.82	150.53	127.02	90.47	56.47	34.88	15.63	6.70	2.67	.98	.41	.28	.49	1,000
22	Germans and Austrians, 15 per cent plus	126,994	4.35	4.18	10.28	20.86	40.50	66.88	102.04	133.18	149.78	146.91	120.28	88.08	55.48	31.82	14.63	6.46	2.47	.82	.43	.25	.33	1,000
	Total	867,755	3.72	3.17	7.86	16.67	33.39	57.31	91.07	125.10	146.49	151.49	129.88	99.17	65.14	37.73	18.28	7.86	3.25	1.24	.45	.32	.41	1,000

13. THE FREQUENCY DISTRIBUTION OF STATURES IN THE GROUPS OF SECTIONS.

The average is quite an inadequate method of indicating the composition of a population with reference to stature, for two populations which are very different in composition may have the same average. Thus one locality may have a large proportion of its men of average stature and another may be composed of nearly equal proportion of very short and very tall men. The average for the two populations might be alike. In Table 23 is given the distribution of statures for men from the different groups in ratios per 1,000 men of a given group. If we compare the ratios of men 61 inches tall in the different groups, we find that there is a large proportion of such exceedingly short men in those sections where French Canadians constitute 10 per cent or more of the population. Next in order come the commuter and eastern manufacturing groups with a large proportion of south Italians and Polish Jews. Then come the sections containing 10 per cent or more Russians, and after them the maritime groups.

The smallest proportion of 61-inch men is found among the mountain whites, the sections containing a large proportion of Indians, the districts characterized by 10 per cent or more Germans and Scandinavians, the southern white agricultural districts, and those sparsely settled areas which contain a good many Indians.

If, now, we turn to the very tall men, say 74 inches, we find that they are commonest in the southern white agricultural groups. Next come the groups of Germans and Scandinavians 10 per cent, then the mountain whites, the desert districts, and those containing a large proportion of Indians on reservations and elsewhere. The smallest proportion of these tall men is found in those sections occupied by 10 per cent or more French Canadians. Next come the eastern manufacturing and commuter sections, and next the group containing 10 per cent or more Russians. It is significant to note that, though the commuter group contains a slightly larger proportion of 61-inch men than the eastern manufacturing group, it contains proportionately very many more men of 72, 73, 74, 75 inches than does the eastern manufacturing group. This indicates that the commuter groups contain not only representatives of the races of eastern and southeastern Europe, who crowd the factories, but also men of the Nordic race, who are more largely leaders in affairs of the cities. In other words, the commuter groups are characterized by a deficiency of men of mediocre stature, 64–67 inches, as compared with the eastern manufacturing group.

A comparison of the southern white agricultural groups with agricultural groups containing 45 per cent or more Negroes shows in the latter a relative excess of short statures, 66 inches and less, and a relative deficiency of statures over 72 inches. This is partly associated with an inferiority in stature of Negroes over the average southern whites (Pl. XVIII). A comparison of the northern agricultural areas, one with over 73 per cent native whites and the other with larger admixture of foreigners, reveals an excess of men under 62 inches in the latter group and also an excess of men 69 inches and over. This shows that the agricultural areas containing a mixture of foreign and native whites are, as might be expected, much more variable in stature, just on account of the variety of races present. The consequence is that the foreign and native groups have a smaller proportion of men of mediocre stature, 67–69 inches, than have the northern native agricultural groups.

If we compare the mining groups with the average of the whole country, we find they are characterized by an excess of short men, 66 inches and under. They are also characterized by a slight deficiency in very tall men, 71 inches or taller. A comparison of the mountain whites of the Alleghenies and the inhabitants of the mountain in other districts shows that the mountain whites have a relative deficiency in men under 67 inches and a marked excess of men with a stature over 69 inches.

Table 22 gives for the different groups of sections the mean height of the drafted men. This is a summary table of Table IV already discussed. In this table there are given the averages and standard deviations. A study of the standard deviations is significant, since this is the measure of variability.

The groups are arranged in descending order of the mean height. This brings out clearly, what has been indicated before, that the mountain whites and southern agriculturists, the Indians, and the Mexicans constitute the tallest part of our population and the groups containing many French Canadians, eastern manufacturing and commuter groups include the shortest of our population. The average height for the United States is, as we have repeatedly seen before, 67.49 inches, and the standard deviation is 2.71, which means that this is the center of gravity, as it were, of the variation above and below the average. When the variation above and below the average is slight, the standard deviation is small; when it is great, the standard deviation is large. Referring to Table 22, we find that the smallest standard deviation applies to the group of the mountain whites, this despite the fact that they are the tallest men, and in the tallest men one would expect a greater variability than in the shorter men, just because there are more inches of height to vary. The fact that the standard deviation is so small, 2.57 inches, indicates that we have to do here with a very homogeneous population. As a matter of fact, this group contains relatively few colored men; it is made up of the old British stock descended from the immigrants of colonial days. At the other extreme, the greatest variability is found in the commuter group. This, of course, is not a biological group at all, but a mixture of successful business men of the Nordic strain together with great numbers of recent immigrants who tend to settle in the seaboard cities and in their suburbs. The latter include, of course, the short races; the combination is the reason for the high standard deviation. Among other small standard deviations is that of the Indian group, 2.61, again containing a fairly homogeneous population. The Scandinavian and German-Scandinavian groups have likewise standard deviations less than the average. The same is true of the northern agricultural groups with their 73 per cent of native whites. The "sparsely settled group" has the same standard deviation. The groups of native whites of Scotch origin and the southern agricultural native white groups are others with small standard deviations. The groups with 45 per cent Negroes or more have a greater variability, owing to the mixture of races. Groups which have a variability above the average for the whole country are, the mining group, to which all kinds of men resort;

the desert group, which includes orientals and tall tuberculous cases from the other sections, and the German and Austrian group, 15 per cent.

Plates VI and VII show for each one of the groups of sections the distribution of the frequency of heights. In each of the charts the average for the whole United States is given so that the departure from this average in each of the different classes may be seen at a glance. It appears that the sections containing 10 per cent Finns have a distribution of height agreeing most closely with that of the United States as a whole. The group containing French Canadians shows the greatest departure from the United States as a whole, owing to the short stature of the people of this section. The Mexican group has a peculiar form, including a more mediocre and a taller subgroup. The taller subgroup is possibly due to the persons affected with pulmonary tuberculosis who are above the average in stature, together with tall Indians.

14. COMPARISON OF STATURE IN EIGHT EUROPEAN RACES OF MEN AT DEMOBILIZATION.

For the sake of completion there are added here the results of measurements of stature at demobilization (1919), in the case of eight European races. Table 25 gives the proportional distribution of different classes of stature. The order is given in the following table:

TABLE 24.—*Mean stature and standard deviation of each of the eight European races.*

Race.	Number examined.	Mean stature.		Standard deviation.	
		Centimeters.	Inches.	Centimeters.	Inches.
Scotch	2,074	172.54	67.93	6.39	2.52
English	4,204	172.08	67.75	6.62	2.61
German	7,077	172.04	67.73	6.61	2.60
Irish	6,164	171.36	67.46	6.31	2.48
Polish	2,408	169.41	66.70	6.12	2.41
French	1,457	168.59	66.37	6.50	2.56
Hebrews	1,692	166.91	65.71	6.20	2.44
Italians	3,519	165.18	65.03	6.06	2.39

The standard deviation in stature is least in the Italians (probably because they are shortest) and greatest in the English (6.62 centimeters), indicating a great admixture of race statures in that people. Other high standard deviations are German, 6.61; French, 6.50. Next to the Italians (6.06) in stature-variability stand the Polish with a standard deviation of 6.12, and the Hebrews with 6.20. The Irish have a standard deviation of 6.31, and the Scotch of 6.39.

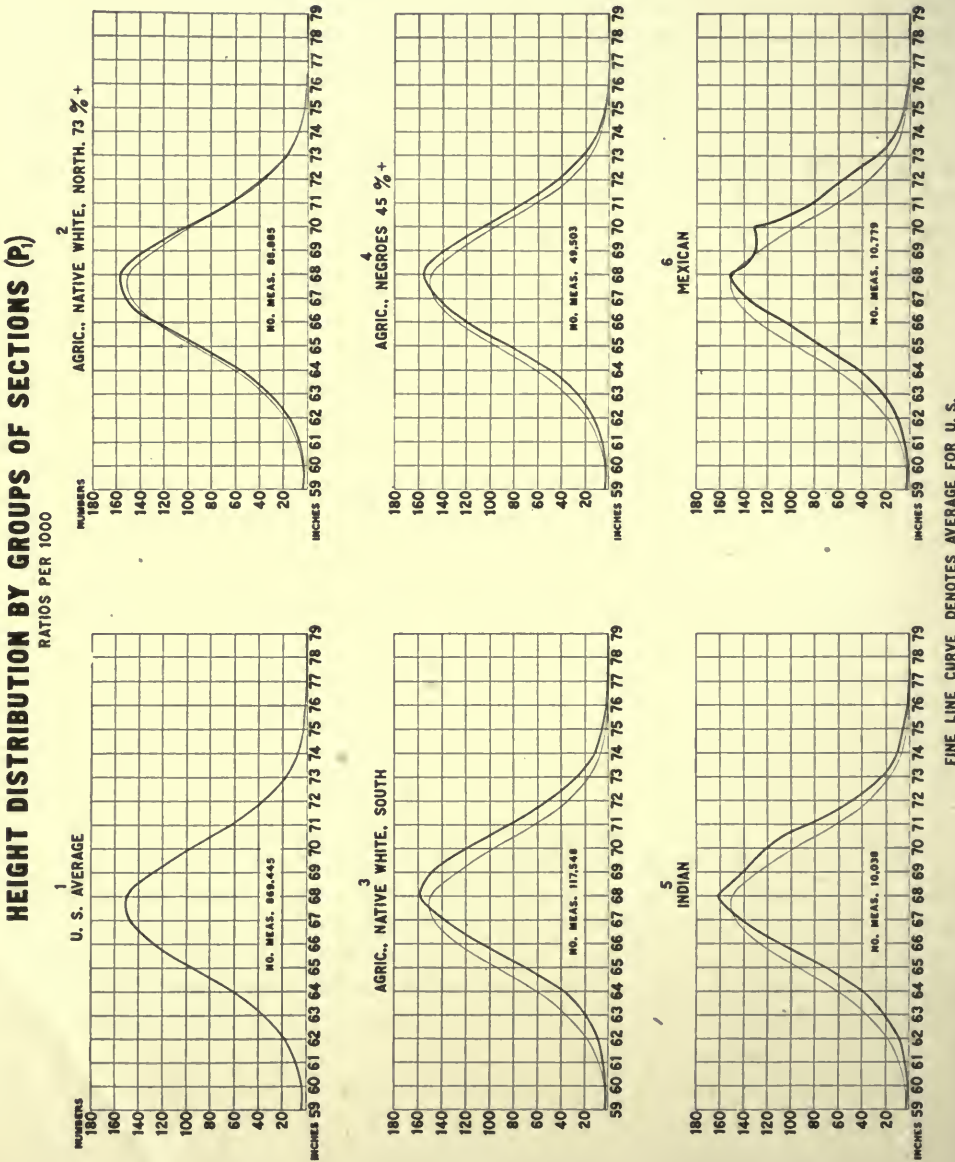
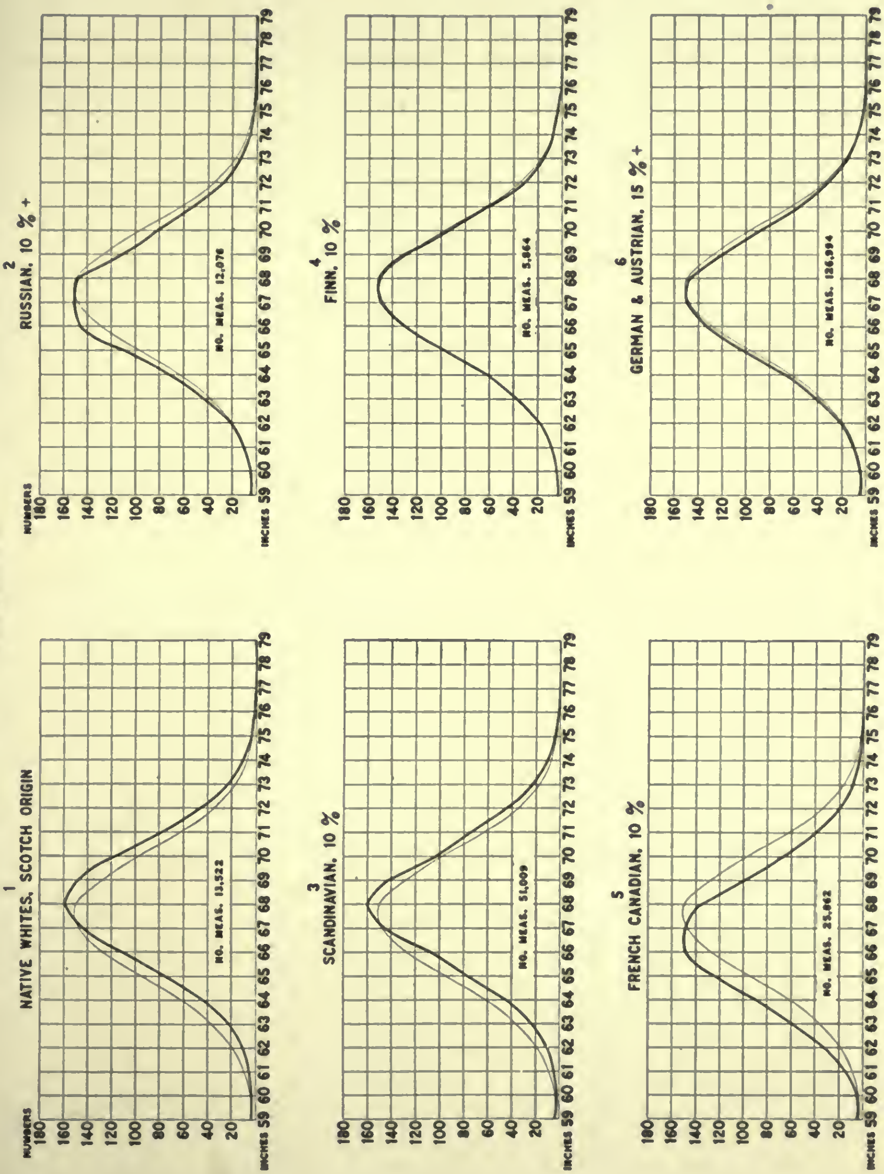

HEIGHT DISTRIBUTION BY GROUPS OF SECTIONS (P1)
RATIOS PER 1000
1
U. S. AVERAGE
NO. MEAS. 869,445
2
AGRIC., NATIVE WHITE, NORTH. 73 %+
NO. MEAS. 88,885
3
AGRIC., NATIVE WHITE, SOUTH
NO. MEAS. 117,548
4
AGRIC., NEGROES 45 %+
NO. MEAS. 49,503
5
INDIAN
NO. MEAS. 10,038
6
MEXICAN
NO. MEAS. 10,779
NUMBERS
INCHES
FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE VI.

HEIGHT DISTRIBUTION BY GROUPS OF SECTIONS (P_1)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U.S.

PLATE VII.

TABLE 25.—*Comparative frequency distribution of height in each of eight races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Height in centimeters.																													
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–205	206–207	208–209
English	4,204	1	1	3	15	25	49	116	193	258	374	451	517	487	437	441	292	221	136	82	43	34	17	8	1	2	....	....	....	....	....	....
Scotch	2,074	....	....	3	7	7	19	56	80	115	172	178	240	283	252	213	176	101	87	48	17	10	7	2	....	1	....	....	....	....	....	....
Irish	6,164	1	1	8	18	47	77	180	316	440	581	686	831	758	705	547	386	240	151	75	64	31	12	5	3	....	....	....	....	....	1	....
German	7,077	2	6	8	18	35	100	191	288	485	593	773	882	832	842	630	489	347	231	152	89	47	17	8	3	4	3	....	....	2	....	....
French	1,457	1	2	4	12	41	62	81	109	143	181	179	190	144	100	84	60	26	20	7	5	3	2	....	....	....	....	....	....	....	....	1
Italian	3,519	2	15	51	100	169	256	375	450	504	423	370	294	199	139	77	46	21	15	5	3	4	....	....	....	....	....	....	1	....	....	....
Polish	2,408	....	3	3	21	30	49	107	195	227	296	292	316	288	210	148	113	44	28	19	12	4	....	2	....	1	....	....	....	....	....	....
Hebrew	1,692	....	3	6	31	52	85	145	184	229	206	214	169	138	86	56	34	27	12	7	3	4	....	....	....	1	....	....	....	....	....	....
Number measured	28,595	7	31	86	222	406	697	1,251	1,815	2,401	2,826	3,143	3,439	3,129	2,771	2,196	1,596	1,027	680	395	236	137	55	25	7	9	3	....	1	2	1	1
Not measured	75	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–205	206–207	208–209
English	4,204	0.24	0.24	0.71	3.57	5.95	11.66	27.59	45.91	61.37	88.96	107.28	122.98	115.84	103.95	104.90	69.46	52.57	32.35	19.50	10.23	8.09	4.04	1.90	0.24	0.48	....	....	....	....	....	....
Scotch	2,074	....	....	1.45	3.38	3.38	9.16	27.00	38.58	55.45	82.93	85.83	115.72	136.45	121.50	102.70	84.87	48.70	41.95	23.14	8.20	4.82	3.38	.96	....	.48	....	....	....	....	....	....
Irish	6,164	.16	.16	1.30	2.92	7.63	12.49	29.20	51.27	71.39	94.26	111.29	134.82	122.97	114.37	88.74	62.62	38.94	24.50	12.17	10.38	5.03	1.95	.81	.49	....	....	....	....	....	0.16	....
German	7,077	.28	.85	1.13	2.54	4.95	14.13	26.99	40.70	68.54	83.80	109.23	124.63	117.56	118.98	89.02	69.10	49.04	32.66	21.48	12.58	6.64	2.40	1.13	.42	.57	0.42	....	....	0.28	....	....
French	1,457	.69	1.37	2.75	8.24	28.14	42.55	55.59	74.81	98.15	124.23	122.86	130.40	98.83	68.64	57.65	41.18	17.85	13.73	4.80	3.43	2.06	1.37	....	....	....	....	....	....	....	....	0.69
Italian	3,519	.57	4.26	14.49	28.42	48.03	72.75	106.56	127.87	143.22	120.20	105.14	83.54	56.55	39.50	21.88	13.07	5.97	4.26	1.42	.85	1.14	....	....	....	....	....	....	0.28	....	....	....
Polish	2,408	....	1.25	1.25	8.72	12.46	20.35	44.43	80.98	94.27	122.92	121.26	131.23	119.60	87.21	61.46	46.93	18.27	11.63	7.89	4.98	1.66	....	.83	....	.42	....	....	....	....	....	....
Hebrew	1,692	....	1.77	3.55	18.32	30.73	50.23	85.70	108.75	135.34	121.75	126.48	99.88	81.56	50.83	33.10	20.10	15.96	7.09	4.14	1.77	2.36	....	....	....	.59	....	....	....	....	....	....
Number measured	28,595	.25	1.08	3.01	7.76	14.20	24.37	43.75	63.47	83.96	98.83	109.92	120.27	109.43	96.91	76.80	55.81	35.91	23.78	13.81	8.25	4.79	1.92	.87	.25	.31	.10	....	.03	.07	.03	.03
Not measured	75	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

Corresponding to their tall stature, we find among the Scotch a larger proportion of men of stature class 172–173 centimeters than among any other people. Indeed, this constitutes the modal class for the Scotch. For the English, 170–171 centimeters is the modal class and the same holds for the German, Irish, Polish, and French. For Hebrews and Italians, however, the modal class is 164–165 centimeters. Under the English system, the modal stature of the Scotch is about 68 inches (172.72 centimeters), of the Italians 65 inches (165.10 centimeters).

TABLE 26.—*The mean stature in five color races, demobilization, 1919.* [a]

Race.	Number of men examined.	Mean stature.	
		Inches.	Centimeters.
White	96,596	67.71	171.99
Negro	6,454	67.70	171.97
Indian	107	67.52	171.51
Chinese	23	67.37	171.11
Japanese	32	67.30	170.94

[a] It will be noted, from examination of Tables 74, 75, 83, 84, 85, 86, 87, 88, 89, 90, and 91, that the average stature varies slightly for the white and Negro troops, the variation depending upon the number of men measured.

15. COMPARISON OF WHITE AND COLOR RACES.

A comparison of stature of white and color races is afforded by Table 26 taken from Tables 107 and LXXXIV and LXXXIX. It gives for the different color races the mean stature (in centimeters and inches). It appears that the stature of the white troops exceeds that of the negro by only 0.02 centimeter, or 0.01 inch. As Table LXXXIX shows, the colored troops are markedly more variable, having a standard deviation of 6.908 ± 0.041, while that of the white troops is only 6.660 ± 0.010 (Table LXXXIV). As the difference is about six times the probable error, it is doubtless significant. The remaining three races are of decidedly shorter stature, and of them the Japanese are the shortest with a stature of 170.94 centimeters (67.30 inches). This figure is far greater than the average for Japanese given by Miwa as 159.3 centimeters (62.72 inches). We conclude, therefore, that the 32 Japanese included in our measurements were exceptionally tall representatives of that short race.

III. WEIGHT.

1. GENERAL DISCUSSION.

This measurement is of great importance in itself and of still greater importance in relation to stature. The varying relation of weight to stature is a measure of build. Build is of importance as an index of physical robustness and general health. Just how weight should be expressed in relation to stature has been much discussed and will be further elaborated in the fifth section, dealing with build. Different races differ in size and average build. In judging weight as an index of health one must, accordingly, take into account the racial constitution of the individual and not apply the same absolute standard to Scotch, French, and Polish Jews.

The medical significance of weight is indicated by its deviation from the normal in various diseases. Table I gives the normal distribution of weights, as determined from 868,445 drafted men. This normal distribution for each stature is shown in Plates XI and XII. The mean weight of the whole population is 141.54 pounds (Table I). If, now, there be selected a group of men having a special disease, it is found that their mean weight frequently varies markedly from this average of all. Thus, it is evident at a glance that men affected with tuberculosis (Plate XXXIV) have a low weight, while men with varicose veins (Plate XXXV) and flat feet have a weight that is above the normal. Abnormal weight may, therefore, be symptomatic of these and other diseases.

Weight is of medico-military importance since a marked progressive change of weight under fairly uniform conditions of nutrition and exercise is an important diagnostic feature. Loss of weight under these circumstances suggests need of careful examination. Increase of weight requires careful consideration of possible endocrine glandular disturbance.

2. METHOD.

The method of measuring weight is fairly simple. When practicable, the subject should be weighed without clothing, since the weight of the latter and contents of the pockets can not be judged accurately enough for "practical" purposes. For recording in times of peace, any good beam scale, in which the weight has to be adjusted, may suffice; but for rapid work in mobilization examination, an automatic, springless scale (like that known under the trade name of "Toledo") has advantages over the beam scale, both for speed and elimination of error in reading the somewhat obscure markings on the beam scale. Care, of course, will be exercised that the subject is standing directly on the platform of the scale and free from contact with anything else.

Mean weight without relation to stature is of only limited significance; still it must be considered in army statistics, since the food requirements of a body of men are better indicated by weight than by any other single measure. The absolute weight of adults varies, of course, with stature. In the very careful measurements made at the Nutrition Laboratory of the Carnegie Institution of Washington (Harris and Benedict[15] pp. 53, 57), the absolute weight of a series of men of which the average stature was also found is given (Table 27).

TABLE 27.—*Weights associated with statures with the standard deviations, and the coefficient of variation for each, in various classes of American males (Harris and Benedict [15]).*

Series.	N.	Average stature (centimeters).	Standard deviation.	Coefficient of variation.
Original series:				
Athletes	16	177.44±1.57	9.33±1.11	5.26±0.63
Others	62	171.82±0.58	6.79±0.41	3.95± .24
Whole series	89	172.45± .56	7.80± .39	4.53± .23
Gephart and Dubois selection	72	172.75± .56	6.98± .39	4.04± .23
First supplementary series	28	174.61±1.04	8.17± .74	4.68± .42
Original and first supplementary series	117	172.97± .50	7.94± .35	4.59± .20
Second supplementary series	19	172.95± .75	4.83± .53	2.79± .31
Other than Gephart and Dubois series	64	173.20± .69	8.21± .49	4.74± .28
All men of three series	136	172.96± .44	7.59± .44	4.39± .18

TABLE 27.—*Weights associated with statures with the standard deviations, and the coefficient of variation for each, in various classes of American males* (*Harris and Benedict* [15])—Continued.

Series.	N	Average weight (kilograms).	Standard deviation.	Coefficient of variation.
Original series:				
Athletes	16	73.82±2.17	12.87±1.53	17.43±2.14
Others	62	63.03±0.77	9.92±0.55	14.32±0.88
Whole series	89	64.33± .77	10.73± .54	16.68± .87
Gephart and Dubois selection	72	63.33± .67	8.37± .47	13.22± .76
First supplementary series	28	62.69±1.34	10.48± .94	16.72±1.55
Original and first supplementary series	117	63.94± .67	10.69± .47	16.73± .76
Second supplementary series	19	65.06±1.13	7.30± .80	11.22±1.24
Other than Gephart and Dubois selection	64	64.96±1.02	12.04± .72	18.54±1.14
All men of three series	136	64.10± .60	10.30± .42	16.06± .67

3. MEAN WEIGHT.

The mean weight of the population of 868,445 accepted recruits of 1917–1918 considered in this paper is 141.54 pounds, or 64.26 kilograms.

Baxter [1] (Vol. I, pp. 51 and 52) states:

While the annals of recruiting contain copious details as to stature, the amount of information furnished upon the subject of weight is, for the most part, extremely meager. A principal reason for this is to be found in the fact that weight is not a regulated quality in any code of laws governing the enlistment of recruits. The circumference of chest thought to be indispensable as an accompanist to certain degrees of stature, is carefully laid down in the English regulations, but weight is not even mentioned. It is to be presumed that the matter is left to the discretion of the examining surgeon, with whom the decision as to the other qualities named might, it is thought, be also left with advantage. A due proportion in the weight is quite as essential in the soldier as a well-formed chest, and is of greater importance than lofty stature. In former times, when it was necessary to make use of a ramrod in loading a musket, men of a certain height were absolutely necessary for the service; but in these days of breech-loading arms, a man from 5 feet to 5 feet 4 inches in stature, and well proportioned in build and weight is, *cæteris paribus*, as serviceable a soldier as can be desired.

The instructions delivered to enrolling surgeons during the War of the Rebellion contained no injunctions as to weight. As a matter of course, it was duly considered in the estimate of "physical fitness" of the conscript; but, unfortunately for the purpose of the present investigation, it was not an obligatory process, and a large part of the returns contain no entry upon the subject. Some energetic officers, however, saw fit to make their work complete by adding the particulars of weight of the other details given and for their records the tables in which the weight is a component, were completed. It is reasonable to assume, as the information was voluntarily furnished, that it was procured with due accuracy. The men weighed were invariably quite naked.

However, the mean weight of recruits of 1917–1918 may be compared with such information as is given by Baxter for recruits of the Civil War. This is, for 6,359 white Americans, 136.05 pounds (61.77 kilograms), and for 377 colored natives, 141.67 pounds (64.32 kilograms). The weight of recruits of British, American, English, Irish, and German origins averaged somewhat under 137 pounds. This smaller weight of Civil War recruits is associated with their shorter mean stature and lower mean age.

Men at demobilization, 1919 (white and colored combined), weighed 144.89 pounds, an increase of 3.35 pounds over weight of recruits. The whites alone, at demobilization, 1919, weighed 144.67 pounds, whereas the whites at demobilization, Civil War, weighed 141.38 pounds. Here again appears the superiority of weight of the troops of 1919 as compared with those of 1865.

The position of males of the United States in relation to those of other countries is indicated by the accompanying table (Table 28) of average weights of adult males of different nationalities:

TABLE 28.—*Average weights of adult males of various nationalities* (*Martin*,[5] *p. 238*).

Race.	Weight.	
	Kilograms.	Pounds.
Tribes of Central Africa	53.5	118
Japanese	54.5	120
Polish Jews	55.0	121
Roumanians	58.4	127
South Russian Jews	61.3	135
Upper Bavarians	63.2	139
French	64.9	143
Belgians	65.0	143
East Friesians	65.1	144
American mulattoes (Gould)	65.8	145
Norwegians	66.0	146

4. THE FREQUENCY DISTRIBUTION OF WEIGHT.

(*a*) *Recruits 1917–1918.*—Table I (page 421) gives the absolute and relative frequencies of each of the different classes of weight into which the 868,445 recruits of 1917–1918 fall. Each of the classes has a range of 5 pounds. The modal class is seen to be 137 pounds, and this class includes 123 per 1,000 men. The frequency is very little less in classes 132 pounds and 142, but below and above these limits the frequency rapidly diminishes to 97 pounds on the one hand and to 202 pounds on the other. Below the lower limit of 97 pounds it is clear that there are proportionately few individuals, but at 202 pounds the upper limit is by no means reached, inasmuch as the class of 202 pounds and over comprises 5.4 per 1,000 persons.

(*b*) *At demobilization.*—Table 29 gives the relative frequency of the different classes of weight as found at demobilization in 1919. The weights are here taken in classes with a range of 10 pounds. For comparison, weights from Table I are given in the first column. The comparison reveals the fact that in veterans as compared with recruits, the mode shifts from 130–139 to 140–149. Of the veterans there were less than half as many of the weight 100–109 and there were also fewer of them of the weight 190–199. As a result of military training and warfare, either the lightest and heaviest men had been weeded out or else the light men had become heavier and the overweight men had lost weight; there was a tendency for the men to become more nearly uniform. However, the frequency of the modal class has not increased, but has fallen slightly, from 238 to 236. The average weight increased from 141.54 to 144.89 pounds.

TABLE 29.—*Frequency distribution of the various classes of weight (per mille) at mobilization, 1917–1918, and demobilization, 1919.*

Class range.	Distribution of weight per Mille.	
	At mobilization.	At demobilization.
90– 99 pounds	0.21	....
100–109 pounds	11.27	5.206
110–119 pounds	72.42	41.602
120–129 pounds	170.76	132.605
130–139 pounds	238.32	222.553
140–149 pounds	217.25	235.943
150–159 pounds	144.85	177.641
160–169 pounds	79.29	104.061
170–179 pounds	36.37	48.003
180–189 pounds	15.96	20.587
190–199 pounds	7.92	7.246
200 pounds and over	5.40	4.561

Weight—
Mobilization; mean 141.54; standard deviation 17.42 pounds.
Demobilization; mean 144.89; standard deviation 17.06 pounds.

Plates XI and XII show, for the first million men, the relation of weight to stature. This is done by a series of 12 graphs, one for each class of stature from 62 to 73 inches, inclusive. On each graph is drawn in a faint line the normal distribution of weight for the entire population. This is for comparison with the curve drawn in heavier line showing the relative frequency of the different classes of weight for men of the respective stature. One learns from these graphs that, as is to be expected, the distribution of frequencies of weights in men 67 inches tall accords most closely with that of the whole population, although the weights of men with a stature of 67 inches are less variable than the weights of the entire population. As the stature diminishes from 67 inches the modal weight departs toward the lighter end of the series and as the stature increases from 67 inches, the modal weight departs toward the heavier end of the series.

5. THE STANDARD DEVIATION OF THE WEIGHT SERIES.

The standard deviation of the weight variability of the 873,159 recruits was 17.42 pounds, or 7,908 grams. The standard-deviation of weight of men at demobilization was 17.06 pounds. This means that the demobilized men were 2 per cent less variable in weight than the recruits. This result is doubtless due in part to the cutting off of the extremes by discharge for disability and in part by the equalizing effect of an approximately uniform good environment.

6. MEAN WEIGHT FOR THE DIFFERENT STATES.

Table 30 shows, by States arranged in order of size, the average weight at mobilization and, for comparison, at demobilization. From this table is compiled the next Table 31, in which the States are arranged in order of the differences of average weight of recruits and veterans.

TABLE 30.—*Average weight, by States, at mobilization, 1917–18, and demobilization, 1919 (in pounds); States arranged in order of standing, with proportional weight for each inch of height, and chest circumference (expiration) for each pound of weight, for the first million draft recruits.*

State.	Number of men measured.	Mean weight at demobilization.	Mean weight. / Mean height.	Mean chest. / Mean weight.	Mean weight. / Mean chest.	Demobilization. (average weight).	Difference.
		Pounds.	*Pounds.*	*Inch.*	*Pounds.*	*Pounds.*	
Alaska	106	150.49	2.208	0.223	4.472	162.00	11.51
South Dakota	3,892	146.96	2.159	.228	4.382	152.19	5.23
North Dakota	6,444	146.95	2.163	.229	4.353	150.89	3.94
Minnesota	27,341	146.41	2.150	.230	4.354	151.37	4.96
Oregon	2,748	146.38	2.150	.228	4.368	148.32	1.94
Montana	11,648	146.32	2.151	.228	4.372	151.11	4.79
Washington	13,316	145.44	2.140	.230	4.347	148.39	2.95
Nevada	1,441	145.35	2.143	.232	4.307	149.50	4.15
Idaho	4,031	145.31	2.133	.232	4.307	150.97	5.66
Nebraska	10,774	144.74	2.126	.229	4.354	151.23	6.49
Iowa	19,537	144.72	2.126	.230	4.332	150.05	5.33
Wyoming	1,927	144.61	2.130	.231	4.332	148.44	3.83
Wisconsin	18,433	144.50	2.137	.232	4.307	147.87	3.37
California	35,461	143.98	2.127	.231	4.312	145.37	1.39
Kansas	9,571	143.72	2.107	.231	4.319	150.14	6.42
Mississippi	8,543	143.23	2.100	.231	4.330	147.54	4.31
Utah	4,568	143.13	2.109	.231	4.319	149.25	6.12
Arizona	3,850	143.04	2.099	.232	4.301	148.34	5.30
Oklahoma	19,429	142.35	2.084	.232	4.293	148.47	6.12
Texas	34,531	142.22	2.079	.232	4.307	147.36	5.14
Michigan	41,872	141.99	2.110	.235	4.258	145.07	3.08
Illinois	69,491	141.77	2.103	.234	4.260	145.42	3.65
Indiana	23,194	141.64	2.090	.233	4.274	144.78	3.14
West Virginia	12,367	141.53	2.085	.235	4.251	146.60	5.07
North Carolina	14,668	141.49	2.076	.235	4.255	146.17	4.68
Missouri	24,964	141.43	2.081	.233	4.275	145.70	4.27
Ohio	52,814	141.38	2.098	.234	4.268	144.45	3.07
Alabama	15,988	141.28	2.077	.233	4.277	144.79	3.51
Arkansas	10,111	141.28	2.071	.234	4.259	146.83	5.55
Colorado	6,635	141.06	2.069	.234	4.265	147.38	6.32
Maine	3,315	141.03	2.100	.237	4.221	142.97	1.94
Georgia	20,305	140.82	2.071	.235	4.241	143.94	3.12
District of Columbia	4,486	140.53	2.077	.232	4.303	140.80	.27
South Carolina	9,343	140.49	2.077	.235	4.244	144.89	4.40
Maryland	9,192	140.40	2.090	.236	4.240	141.81	1.41
Virginia	17,616	140.34	2.070	.236	4.230	146.05	5.71
Vermont	2,077	140.33	2.091	.238	4.198	136.95	−3.38
New Hampshire	2,240	140.33	2.095	.236	4.227	142.67	2.34
Tennessee	14,426	140.10	2.052	.235	4.249	145.54	5.44
Kentucky	15,502	140.00	2.058	.235	4.245	144.50	4.50
Connecticut	13,585	139.82	2.095	.239	4.182	141.05	1.23
Pennsylvania	77,186	139.72	2.094	.236	4.221	142.46	2.74
Louisiana	12,356	139.62	2.065	.236	4.221	146.41	6.79
New York	87,818	139.53	2.091	.238	4.200	140.43	.90
Delaware	1,891	139.45	2.075	.237	4.212	142.22	2.77
Florida	5,895	139.32	2.061	.237	4.214	141.50	2.18
New Jersey	29,958	138.81	2.079	.239	4.170	140.29	1.48
New Mexico	2,690	138.47	2.051	.239	4.178	144.00	5.53
Massachusetts	29,534	138.40	2.070	.239	4.181	139.74	1.34
Rhode Island	3,928	136.44	2.060	.241	4.156	140.19	3.75

Here, again, the numbers at demobilization from certain of the States and Territories, like Alaska, Nevada, and Wyoming, are so small that no stress must be laid upon the average that they show.

7. INCREASE IN WEIGHT AT DEMOBILIZATION OVER MOBILIZATION (TABLE 31).

For the United States as a whole, the troops show an increase in weight of 3.35 pounds. The greatest increase was found in men from Alaska, 11.51 pounds, where the number weighed was too small to furnish reliable averages. In the upper half of the list, showing an increase of 4 pounds or more, we find certain Southern States, such as Louisiana, with an average increase of 6.8 pounds; Oklahoma, 6.1 pounds; Virginia, 5.7; Arkansas, 5.6; Tennessee, 5.4; Texas, 5.1; West Virginia, 5.1; North Carolina, 4.7; Kentucky, 4.5; South Carolina, 4.4; and Mississippi, 4.3. On the other hand, the only Southern

States in which the troops showed an increase of less than 4 pounds were Alabama, 3.5; Georgia, 3.1; and Florida, 2.2. Evidently the tall and slender men were most improved in absolute weight by army life, partly because there was the greatest room for improvement. A striking increase in weight was shown also by troops from Nebraska, Kansas, Colorado, Utah, Iowa, and South Dakota, a group which (with the exception of Colorado) contains prevailingly agricultural States.

At the other end of the table stands last New Hampshire, with a decrease of over 3 pounds on the average in her troops at demobilization as compared with mobilization. As pointed out above, the numbers were small, and it is possible that the troops at demobilization were a specially selected lot. Next from the bottom stand men from the District of Columbia with practically no change. Then come men from New York, Connecticut, Massachusetts, Maryland, New Jersey, all States containing large cities in which the population is probably well nourished and free from parasitic diseases such as keep the weight of the southern men down. Consequently they show the least change as a result of the medical treatment and sanitary conditions in the Army.

TABLE 31.—*States arranged in order of difference of weight at mobilization, 1917–1918, and demobilization, 1919.*

State.	Difference.	State.	Difference.
	Pounds.		*Pounds.*
United States	3.35	North Dakota	3.94
Alaska	11.51	Wyoming	3.83
Louisiana	6.79	Illinois	3.65
Nebraska	6.49	Rhode Island	3.65
Kansas	6.42	Alabama	3.51
Colorado	6.32	Wisconsin	3.37
Utah	6.12	Indiana	3.14
Oklahoma	6.12	Georgia	3.12
Virginia	5.71	Michigan	3.08
Idaho	5.66	Ohio	3.07
Arkansas	5.55	Washington	2.95
New Mexico	5.53	Delaware	2.77
Tennessee	5.44	Pennsylvania	2.74
Iowa	5.33	Vermont	2.34
Arizona	5.30	Florida	2.18
South Dakota	5.23	Maine	1.94
Texas	5.14	Oregon	1.94
West Virginia	5.07	New Jersey	1.48
Minnesota	4.96	Maryland	1.41
Montana	4.79	California	1.39
North Carolina	4.68	Massachusetts	1.34
Kentucky	4.50	Connecticut	1.23
South Carolina	4.40	New York	.90
Mississippi	4.31	District of Columbia	.27
Missouri	4.27	New Hampshire	−3.38
Nevada	4.15		

TABLE 32.—*Comparative view of mean height and mean weight of men from different States: (a) First million draft recruits (white and colored), 1917 and 1918; (b) 100,000 demobilized troops (white and colored), 1919; and (c) Civil War volunteer recruits (Gould).*

States.	First million draft recruits (white and colored), 1917 and 1918.			100,000 demobilized troops (white and colored), 1919.				Civil War volunteer recruits (Gould), 1869, pp. 104 and 105.	
	Number of men measured.	Mean height.	Mean weight.	Number of men measured.	Mean weight.	Number of men measured.	Mean height.	Number of men measured.	Mean height.
		Inches.	*Pounds.*		*Pounds.*		*Inches.*		*Inches.*
Average for United States.	868,445	67.49	141.54	83,585	144.89	102,304	67.72	1,104,841	67.64
Alabama	15,988	68.01	141.28	383	144.79	1,930	68.57	....	....
Alaska	106	68.15	150.49	12	162.00	13	69.43	....	....
Arizona	3,850	68.13	143.04	125	148.34	130	68.33	....	....
Arkansas	10,111	68.20	141.28	2,538	146.83	2,576	68.41	....	....
California	35,461	67.67	143.98	414	145.37	481	67.91	....	....
Colorado	6,635	68.15	141.06	208	147.38	225	68.12	....	....
Connecticut	13,584	66.71	139.82	550	141.05	996	67.08	....	....
Delaware	1,891	67.19	139.45	189	142.22	300	67.26	....	....
District of Columbia	4,486	67.63	140.53	184	140.80	231	67.60	....	....
Florida	5,895	67.58	139.32	140	141.50	1,022	68.22	....	....
Georgia	20,305	67.99	140.82	446	143.94	3,397	68.51	....	....
Idaho	4,031	68.10	145.31	153	150.97	164	68.26	....	....
Illinois	694,491	67.40	141.77	6,462	145.42	6,687	67.65	188,507	67.97
Indiana	23,194	67.75	141.64	3,804	144.78	3,944	67.73	118,251	68.06
Iowa	19,537	68.04	144.72	1,543	150.05	1,609	68.28	29,604	68.13
Kansas	9,571	68.20	143.72	978	150.14	1,012	68.43	....	....
Kentucky	15,502	68.02	140.00	2,753	144.50	2,921	68.13	23,993	68.16
Louisiana	12,356	67.60	139.62	1,726	146.41	2,070	67.86	2,582	66.83
Maine	3,315	67.28	141.03	209	142.97	693	67.17	52,314	68.12
Maryland	9,192	67.08	140.40	983	141.81	1,138	67.20	7,333	67.31
Massachusetts	29,534	66.76	138.40	1,320	139.74	4,782	66.77	40,855	67.05
Michigan	41,872	67.23	141.99	3,618	145.07	3,715	67.32	23,322	67.62
Minnesota	27,341	68.04	146.41	1,882	151.37	1,950	68.31	6,697	67.63
Mississippi	8,543	68.27	143.23	1,566	147.54	2,099	68.61	....	....
Missouri	24,964	67.95	141.43	2,752	145.70	2,836	67.98	57,494	68.03
Montana	11,648	68.01	146.32	245	151.11	264	68.35	....	....
Nebraska	10,774	68.08	144.74	791	151.23	819	68.44	....	....
Nevada	1,441	67.83	145.35	16	149.50	18	67.91	....	....
New Hampshire	2,240	66.97	140.33	94	136.95	413	66.80	26,821	67.40
New Jersey	29,958	66.77	138.81	3,103	140.29	3,180	66.93	18,875	66.58
New Mexico	2,690	67.50	138.47	221	144.00	229	67.82	....	....
New York	87,818	66.72	139.53	8,965	140.43	9,207	66.92	188,008	67.09
North Carolina	14,668	68.15	141.49	570	146.17	1,815	68.22	....	....
North Dakota	6,444	67.92	146.95	335	150.89	358	67.96	....	....
Ohio	52,814	67.38	141.38	6,900	144.45	7,076	67.48	108,288	67.84
Oklahoma	19,429	68.28	142.35	2,274	148.47	2,310	68.44	....	....
Oregon	3,825	68.09	146.38	1,049	148.32	1,069	68.38	....	....
Pennsylvania	77,186	66.72	139.72	10,408	142.46	10,874	67.01	77,761	67.14
Rhode Island	3,928	66.40	136.44	209	140.19	403	66.54	41,305	67.09
South Carolina	9,343	67.64	140.49	205	144.89	828	68.32	....	....
South Dakota	3,892	68.05	146.96	399	152.19	416	68.39	....	....
Tennessee	14,426	68.27	140.10	781	145.54	2,807	68.61	....	....
Texas	34,531	68.40	142.22	4,282	147.36	4,361	68.60	....	....
Utah	4,568	67.85	143.13	99	149.25	104	68.19	....	....
Vermont	2,077	67.12	140.33	93	142.67	446	67.19	24,062	67.61
Virginia	17,616	67.80	140.34	1,421	146.05	1,920	68.01	....	....
Washington	13,316	67.96	145.44	1,984	148.39	2,025	68.38	....	....
West Virginia	12,367	67.87	141.53	1,516	146.60	1,686	68.20	17,563	68.43
Wisconsin	18,433	67.60	144.50	2,616	147.87	2,675	67.79	51,202	67.65
Wyoming	1,927	67.79	144.61	71	148.44	80	68.16	....	....

8. MEAN WEIGHT OF RECRUITS FROM THE DIFFERENT SECTIONS.

From the mean weight of 141.54 pounds for recruits from the United States at large, that of the various sections showed considerable deviation (see Table 33). Thus, excepting Alaska, the greatest average weight is found in South Dakota 3 (148.3 pounds), whose population is largely Indian. Next comes Minnesota 1, with a prevailingly Scandinavian population. Other high mean weights (of 147 or more) are found in Minnesota 2, North Dakota 3, and South Dakota 2. These contain (besides Scandinavians) Germans and Russian Mennonites. Sections with mean weights between 146 and 147 pounds are:

Montana 2, South Dakota 1, Oregon 1, Minnesota 3, North Dakota 1, and Washington 3.

The foregoing is a strikingly different list of sections from that standing at the top of Table 13, of mean stature; those were all southern sections. These comprise heavy men of only slightly greater stature than the average; those are tall and lank. The first southern section to come in as we proceed downward on Table 33 is Texas 5, with a large Negro population, mean weight 144.7 pounds.

At the bottom of the table of mean weights is Florida 3 (Key West), with a population that is prevailingly Cuban, Spanish, and West Indian, racially small and living under insanitary conditions, with a mean weight of only 136.2 pounds. Next comes Rhode Island and then Philadelphia (137.6 pounds). New Orleans, with its numerous French, comes next highest; then the manufacturing section of northeast Massachusetts; then the part of New Mexico where many tuberculous patients dwell; and then, New York City with a mean weight of 138.5 pounds. Above lie numerous sections of the Middle and New England States—homes of men of small races. Relatively few southern sections are found in the lowest 10 per cent of the table; another of Florida's sections, however, is found here, possibly a consequence of hookworm and malaria. Chicago stands a little below the middle of the table (mean weight 140.9 pounds). Minneapolis and St. Paul stand in the upper third (144.2 pounds). Many other points of interest will be revealed from a study of the table.

TABLE 33.—*Mean weight by sections; sections arranged in order of standing with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits.*

State.	Section.	Characteristics of sections.	Number of men measured.	Mean weight.	Standard deviation (weight).	Mean weight. / Mean height.	Mean chest. / Mean weight.
				Pounds	*Pounds.*	*Pounds.*	*Inch.*
Average for United States.	......	....	868, 445	141.54	17.42	2.097	0.234
Alaska..........	All.	Undivided..............................	106	150.49	14.95	2.208	.223
South Dakota...	3	Indian population......................	247	148.30	16.77	2.180	.228
Minnesota.......	1	Scandinavian population................	6,461	148.28	16.61	2.170	.228
Minnesota.......	2	German and Scandinavian population..	7,601	147.64	17.31	2.170	.229
North Dakota...	3	Russian population.....................	2,005	147.48	16.83	2.172	.228
South Dakota...	2	Large Russian population...............	594	147.22	16.15	2.170	.228
North Dakota...	2	Scandinavian population................	3,307	146.93	16.23	2.159	.230
Montana........	2	Sparsely settled, mountainous area.....	6,531	146.80	16.65	2.150	.229
South Dakota...	1	Dry farming area.......................	3,051	146.80	18.54	2.160	.228
Oregon..........	1	Fairly densely populated...............	2,748	146.61	17.44	2.153	.228
Minnesota.......	3	Scandinavians and Finns................	3,520	146.44	16.84	2.170	.232
North Dakota...	1	Scandinavian and Canadian population	1,132	146.10	16.20	2.159	.230
Washington.....	3	Mountainous area.......................	1,537	146.07	16.29	2.142	.230
California.......	2	Mining area............................	943	145.84	16.85	2.154	.231
Oregon..........	2	Columbia River Valley and coastal dry plain, sparsely populated.	1,077	145.82	16.64	2.140	.229
Montana........	1	Mining area, foreign population........	5,117	145.70	16.65	2.150	.229
Nebraska.......	2	German, Austrian, and Russian stocks.	3,145	145.70	17.73	2.136	.229
Iowa............	1	Foreign white, German and Scandinavian.	12,136	145.67	17.10	2.139	.230
Washington.....	1	Coastal region plus eastern counties.....	5,176	145.50	17.10	2.139	.230
Nevada.........	All.	State undivided, sparse population.....	1,441	145.35	17.11	2.143	.232
Idaho...........	All.	State undivided........................	4,034	145.31	16.29	2.133	.232
Washington.....	2	Puget Sound, foreign white............	6,601	145.25	17.28	2.140	.230
Wisconsin.......	1	Scandinavian and German population..	3,297	145.13	16.93	2.130	.232
Kansas..........	1	Russian population.....................	1,067	144.95	17.44	2.122	.229
Wisconsin.......	2	German population......................	7,685	144.94	17.13	2.140	.232

TABLE 33.—*Mean weight by sections; sections arranged in order of standing with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits*—Continued.

State.	Section.	Characteristics of sections.	Number of men measured.	Mean weight.	Standard deviation (weight).	Mean weight. / Mean height.	Mean chest. / Mean weight.
				Pounds.	*Pounds.*	*Pounds.*	*Inch.*
California	1	Chiefly agricultural area	17,793	144.80	17.74	2.137	0.231
Michigan	1	Finnish population	2,344	144.74	16.83	2.160	.232
Texas	5	Large Negro population	1,342	144.68	13.23	2.110	.231
Wyoming	All.	State undivided, sparsely populated	1,927	144.61	16.89	2.130	.231
Indiana	2	Agricultural, considerable German	837	144.45	17.24	2.120	.231
California	3	Sparsely populated	2,108	144.39	17.53	2.116	.231
Nebraska	1	German and Irish foreign stocks	7,629	144.37	17.48	2.120	.230
Texas	3	German and Negro population	1,382	144.36	17.53	2.110	.231
Wisconsin	4	Lake counties	2,890	144.35	17.48	2.140	.234
Alabama	4	Large Negro population	669	144.21	14.81	2.115	.229
Minnesota	4	Urban area, "Twin Cities"	9,759	144.20	17.48	2.130	.230
Mississippi	1	Rural area, large Negro population	5,149	144.16	16.45	2.120	.231
Utah	1	Sparsely populated	1,224	144.06	15.49	2.114	.233
Do	3	Mining area	563	143.88	16.54	2.127	.232
California	5	Urban area	7,180	143.82	18.18	2.137	.231
Kansas	2	Native and German population	8,504	143.56	17.21	2.105	.231
Arizona	1	Large Indian population, sparsely settled.	1,027	143.29	16.93	2.106	.232
Illinois	1	Densely populated	6,303	143.19	17.88	2.123	.233
Iowa	2	Native white	7,401	143.15	17.27	2.106	.231
Illinois	4	Largely German population	4,236	143.02	17.82	2.115	.233
Do	8	Agricultural and manufacturing area	2,451	143.01	17.17	2.110	.233
Arizona	2	Chiefly white population	2,823	142.95	17.34	2.096	.232
Illinois	2	Mixed native and foreign population	7,803	142.92	17.64	2.114	.233
Oklahoma	2	Chiefly white population	10,778	142.92	16.97	2.090	.232
Alabama	2	Large Negro population	3,327	142.57	16.77	2.098	.233
Utah	2	More densely populated	2,781	142.56	16.83	2.105	.230
Missouri	3	Native white, Ozark region	1,139	142.49	15.68	2.080	.234
New York	6	Urban area	6,541	142.35	18.14	2.126	.234
Texas	2	Sparsely settled, white	22,118	142.31	17.29	2.080	.231
Do	4	Coastal native population	2,701	142.24	17.05	2.090	.233
Michigan	3	Foreign population	6,298	142.23	17.63	2.110	.235
California	4	Urban area	7,428	142.19	17.92	2.099	.232
North Carolina	4	Large Negro population	4,570	142.18	17.01	2.097	.233
Colorado	3	English population	381	142.13	15.50	2.086	.233
Illinois	3	Agricultural area, native	8,928	142.13	17.23	2.094	.232
Missouri	2	Mississippi bottoms, considerable Negro population.	3,448	142.12	16.96	2.090	.233
Indiana	1	Manufacturing	3,614	142.07	18.15	2.113	.235
Colorado	4	Prevailingly agricultural	1,227	142.05	16.20	2.087	.233
Do	2	Russian population	1,105	142.04	15.50	2.094	.234
South Carolina	2	Large Negro population	3,975	142.04	16.29	2.100	.234
Illinois	7	Agricultural area	5,442	142.03	17.47	2.092	.234
Maine	1	English Canadian	1,240	142.02	16.51	2.110	.235
Michigan	2	Prevailingly native white population	12,567	142.01	16.85	2.100	.235
Tennessee	1	Negroes, Mississippi bottoms	2,218	141.97	17.11	2.090	.232
Texas	1	Large Mexican population	6,389	141.85	17.40	2.080	.234
Ohio	4	Urban area	3,557	141.83	18.74	2.104	.232
Arkansas	1	Negro, Mississippi bottoms	4,945	141.81	16.39	2.083	.233
Mississippi	2	Rural area, large native white population.	3,394	141.81	16.43	2.070	.231
Missouri	1	Native white, agricultural	13,588	141.67	17.06	2.080	.234
New Hampshire	1	Mountainous area	665	141.67	17.96	2.016	.238
Colorado	1	Large native white population	1,056	141.64	15.73	2.081	.235
Oklahoma	1	Marked Indian and Negro population	8,471	141.63	16.80	2.078	.233
West Virginia	2	Agricultural region	10,860	141.62	16.96	2.087	.235
Ohio	1	Dense foreign population	17,208	141.62	18.15	2.111	.234
North Carolina	3	Native white of Scotch origin	2,053	141.55	16.75	2.074	.234
New York	7	Agricultural and dairying	6,466	141.53	17.62	2.098	.236
Pennsylvania	6	Rural area	8,616	141.40	16.93	2.099	.235
Indiana	3	Agricultural area, native stock	18,743	141.37	17.80	2.083	.233
Maine	2	Native white stock, maritime	828	141.37	16.10	2.091	.237
Michigan	4	Urban area	17,771	141.32	17.59	2.110	.235
Do	5	Dutch and other foreign population	2,892	141.27	17.04	2.090	.235
North Carolina	5	Island and peninsular area	254	141.27	15.86	2.087	.235
Ohio	3	Agricultural area	17,606	141.27	17.46	2.085	.235
North Carolina	1	Sparsely populated mountainous area	2,738	141.22	15.96	2.056	.238
Ohio	2	Intermediate	14,438	141.10	17.31	2.096	.234
Georgia	2	Large Negro population	10,078	141.09	16.83	2.077	.236
North Carolina	2	Intermediate	4,309	141.07	17.14	2.066	.235
Pennsylvania	5	Manufacturing	8,907	141.06	17.02	2.116	.235
Do	4	Coal mining	4,827	140.94	17.22	2.109	.235
Illinois	5	Urban area	33,919	140.86	17.60	2.099	.236
West Virginia	1	Mountainous area	1,507	140.85	16.45	2.072	.236
Virginia	1	Peninsular region and east shore	2,884	140.82	17.25	2.090	.233
Alabama	1	Mining and manufacturing area	8,841	140.81	16.41	2.071	.233
Arkansas	2	Large native white population, hill country.	1,556	140.78	14.90	2.050	.236
Do	3	Large native white population	3,607	140.77	16.13	2.063	.235

TABLE 33.—*Mean weight by sections; sections arranged in order of standing with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits*—Continued.

State.	Section.	Characteristics of sections.	Number of men measured.	Mean weight.	Standard deviation (weight).	Mean weight. / Mean height.	Mean chest. / Mean weight.
				Pounds.	*Pounds.*	*Pounds.*	*Inch.*
Virginia	3	Native rural region	3,866	140.77	16.28	2.066	0.237
Maryland	3	Large white population	2,683	140.76	16.48	2.090	.237
Alabama	3	Large native white population	2,670	140.71	15.84	2.062	.235
North Carolina	6	Remainder of State	743	140.63	16.35	2.076	.235
Wisconsin	3	Urban and foreign stock	4,527	140.62	18.04	2.100	.237
Georgia	1	Mixed population, native white predominating.	10,248	140.55	16.71	2.064	.235
District of Columbia.	All.	District undivided	4,493	140.53	18.03	2.077	.232
Louisiana	1	Mississippi bottoms and upland, large Negro population.	4,074	140.47	16.55	2.073	.236
New York	4	Western manufacturing region	14,220	140.46	17.49	2.096	.236
Missouri	4	Urban area	6,789	140.44	18.40	2.080	.235
South Carolina	1	Native white	1,564	140.42	16.72	2.060	.235
Vermont	All.	State undivided	2,073	140.33	16.43	2.091	.238
Maryland	1	Urban area	5,441	140.29	17.49	2.100	.235
New York	8	Mountainous, Adirondack area	2,990	140.21	16.71	2.090	.237
Alabama	5	Urban and suburban area	481	140.16	16.61	2.066	.234
Colorado	5	Urban population	1,644	140.16	16.26	2.070	.234
Florida	2	More Negro and rural population	996	140.14	17.53	2.070	.236
Louisiana	3	Rural, chiefly white population	5,235	140.13	16.22	2.064	.236
Pennsylvania	3	Mining area	7,305	140.10	17.17	2.105	.237
Virginia	2	Large Negro population	5,352	140.10	16.43	2.077	.236
Kentucky	2	Agricultural area	11,469	140.02	16.76	2.060	.234
Tennessee	3	Mountainous region	5,900	140.02	16.43	2.050	.235
Virginia	4	Mountain, white	5,512	140.02	15.94	2.055	.238
Maryland	2	Peninsular area	1,068	140.01	16.56	2.080	.236
New York	3	Eastern manufacturing region	5,150	139.94	17.50	2.092	.238
Connecticut	2	Manufacturing area	8,708	139.92	18.20	2.096	.238
Kentucky	1	Mountainous area, native white	4,033	139.92	15.26	2.051	.237
Pennsylvania	2	Rural area, native stock	14,207	139.83	17.06	2.095	.237
Maine	3	French Canadian population	1,247	139.71	17.21	2.080	.238
Connecticut	1	Prevailingly agricultural and near metropolitan.	4,876	139.65	17.73	2.094	.240
Florida	4	Peninsular	2,340	139.60	16.85	2.069	.237
Massachusetts	4	Urban area	8,587	139.59	17.65	2.090	.237
Pennsylvania	7	Allegheny County plus a small rural area.	17,243	139.55	17.56	2.093	.236
Tennessee	2	Agricultural region	6,308	139.50	16.33	2.040	.237
Delaware	All.	State undivided	1,894	139.45	17.06	2.075	.237
Colorado	6	Austrian and Italian population	1,222	139.40	16.10	2.060	.235
New York	1	Suburban territory	4,934	139.39	17.09	2.091	.238
Do	5	Mountainous, Catskill region	795	139.30	16.74	2.074	.238
Illinois	6	Negro population (Egypt)	409	139.27	16.39	2.043	.236
New Jersey	3	Mountainous area plus Atlantic County.	3,195	139.18	16.13	2.082	.240
New Hampshire	2	Manufacturing area	1,575	139.13	17.55	2.081	.237
New Mexico	1	Indian population	293	139.12	18.49	2.068	.239
Do	3	Noteworthy Mexican element	540	139.01	17.36	2.048	.234
New Jersey	2	Plains section, rural	8,968	138.92	17.34	2.078	.240
South Carolina	3	Peninsular and rural areas	3,804	138.90	15.70	2.060	.238
Florida	1	More white and maritime	2,846	138.83	16.46	2.050	.237
Massachusetts	3	Peninsular region	1,127	138.70	16.76	2.070	.237
New Jersey	1	Densely populated	17,795	138.69	17.59	2.078	.239
Massachusetts	1	Mountainous area	1,373	138.52	17.13	2.070	.237
New York	2	Urban area, densely populated	46,718	138.50	18.29	2.084	.239
New Mexico	2	Native white population	1,857	138.20	16.42	2.049	.240
Massachusetts	2	Manufacturing center	18,447	137.82	17.25	2.070	.241
Louisiana	2	Urban area	3,047	137.62	16.55	2.056	.237
Pennsylvania	1	Urban area	16,085	137.61	17.48	2.065	.239
Rhode Island	All.	State undivided	3,928	136.44	17.69	2.060	.241
Florida	3	Cuban, Spanish, West Indian population.	84	136.23	16.98	2.026	.240

9. MEAN WEIGHT FOR THE DIFFERENT GROUPS.

Tables 35, Section A, gives the absolute distribution of frequency of weights of men found in the 22 groups. The ratios per 1,000 are given in Table 35, Section B. The tables show that the lowest average weights are found in those sections containing 10 per cent or more of French Canadians (group 19) and in the eastern manufacturing group (group 5) and commuter group (group 6).

The higher weights, on the other hand, of 180 pounds or more, are found especially in the group (group 20) containing 10 per cent or more of Germans and Scandinavians, in group 17 containing 10 per cent or more of Scandinavians alone, in group 18, containing 10 per cent or more of Finns, in the sparsely settled and Mexican groups (group 8 and group 14), and in those containing 20 per cent or more of Germans and Austrians (group 21). The largest proportion of extremely heavy men is found in the sections with 10 per cent or more of Germans and Scandinavians and 20 per cent or more of Germans and Austrians. If we compare now the southern white agricultural and Negro agricultural groups, we find relatively little difference except that the white group contains proportionately fewer men under 115 pounds and over 140 pounds. Of these men, however, there is an excess in the white agricultural groups with a weight of 185 pounds and over. Apparently obese Negroes are less common than obese whites.

If we compare the northern native white agricultural groups with those of mixed population, we find an excess of underweight or low weight in the former and a slight excess of heavy weights in the latter. However, of extremely obese men, 190 pounds or over, there is an excess in the native white group.

Comparing the eastern manufacturing with the commuter groups we find an excess of thin men in the former and of men of 155 pounds and more in the latter. There is, however, a very slight excess of extremely obese men in the eastern manufacturing over the commuter groups. Comparing the mountain whites with inhabitants of other mountainous areas, there is an excess of thin men in the mountain whites and a deficiency of heavy men. The native whites of Scotch origin show a slight excess of low-weight men, and a corresponding deficiency of heavy men. And the French Canadian group, as might be expected, shows a very large excess of slight men and a corresponding deficiency of heavy men.

Table 34 gives the mean weights and standard deviations for the groups as well as relative stature and chest between them. It may be worth while to consider the significance of certain extremes in the standard deviations. Thus in weight, we find the highest standard deviation, or the greatest variability, in the sections containing 20 per cent or more of Germans and Austrians. Such sections are characterized by a mixture of strains dissimilar in weight. The smallest standard deviation in weight is that of the mountain whites, obviously a homogeneous people. Other high standard deviations, 17.70 or over, are found in the eastern manufacturing group and in the commuter group, of which the significance has already been discussed; also in the group containing Germans and Austrians, 15 per cent. Of groups with small standard deviations, 16.90 or under, we have the sections occupied by 10 per cent or more of Finns, mountain populations aside from the southern Alleghenies, the mining sections, the southern white agricultural sections, the maritime sections, and the Negro agricultural sections. These are more homogeneous in their racial characteristics than the other groups.

The relation between the distribution of weights in the populations of the different groups, or sections, as compared with their distribution in recruits in general is shown in the graphs of Plates VIII and IX. A study of these curves reveals the following facts: Groups containing over 10 per cent of Scandinavians have a population of men strikingly heavier than recruits at large. Thus there is a deficiency of men under 140 pounds and an excess of men over 140 pounds in weight. The modal weight of Scandinavian groups is 5 pounds above that of recruits in general. This is, of course, associated with the excess height of Scandinavians.

The groups of sections having 10 per cent or more of Finns reveals a population that is much heavier than the average. There is a deficiency of men under 135 pounds and an excess of men weighing 140 pounds or more, and this despite the fact that in these same sections the distribution of statures is essentially that of the whole population of recruits. This shows then that in those sections which are characterized by an excess of Finns we have men of exceptionally robust build, and it is well known from other sources of information that the Finns, like most races of the extreme north, tend to put on weight and are of heavy build.

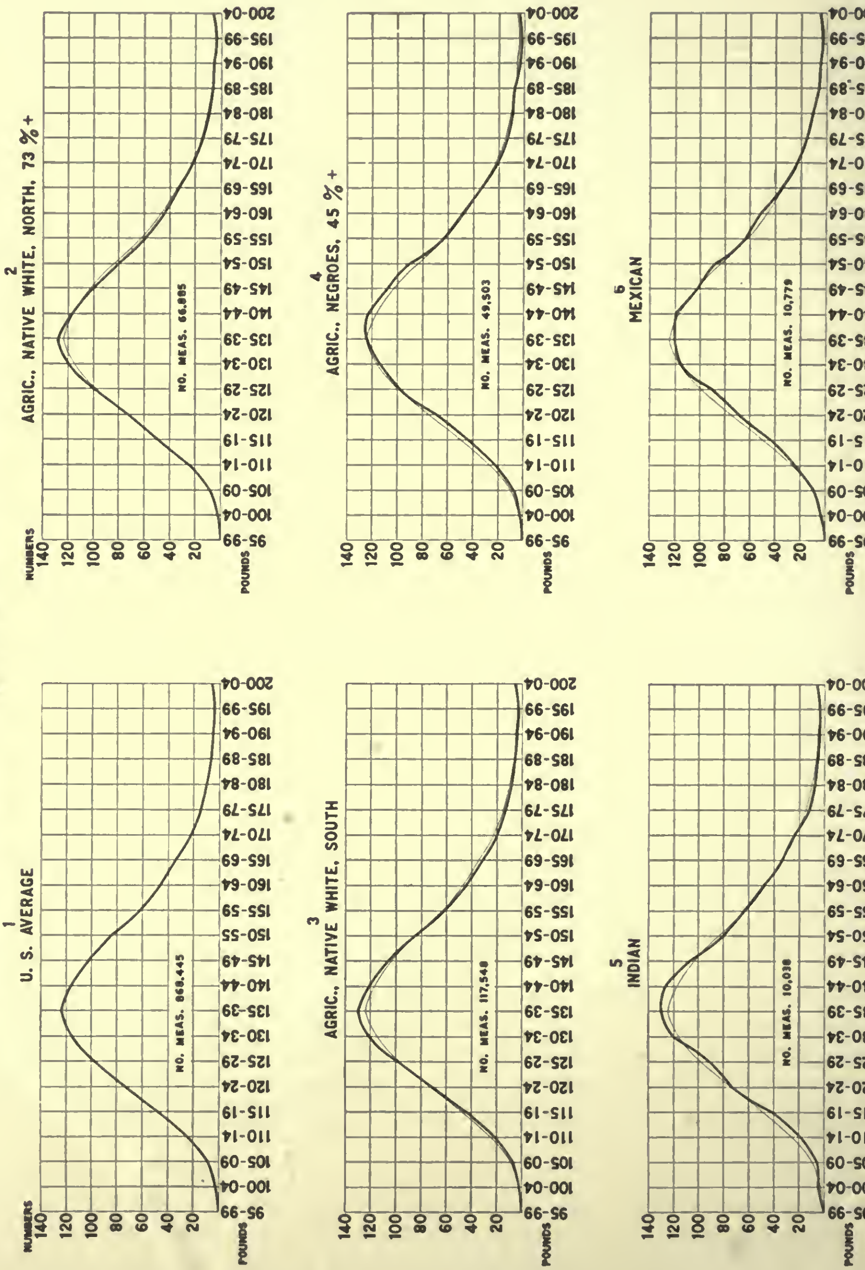
On the other hand, the groups containing 10 per cent or more of French Canadians are characterized by a great excess of men with a weight under 135 pounds and a deficiency of men above 135 pounds. The mode is indeed shifted from 137 pounds to about 132 pounds. This low weight of the groups with a large proportion of French Canadians is associated with the small stature of the population of these groups. These groups therefore contain an excess of population of small size.

The populations of the groups containing native whites of Scotch origin are peculiar in this, that they have an excess of men under average weight, while at the same time they have an excess of men over average stature. Thus, as the graphs in Plate IX show, the modal weight is clearly below that of the population of recruits in general and the group is less variable than that of recruits in general, which suggests that we have to do here with a racial characteristic. We may say then that, from the evidence of these graphs, the Scotch groups are characterized by an excess of tall, gaunt men.

The remaining groups show less striking deviations from the average of all recruits. The groups with an excess of Austrians and Germans are somewhat heavier than the average and the same is true of the groups containing 10 per cent or more of Russians. The groups containing nearly half Negroes are slightly above the average in weight, much more than the southern agricultural groups containing a larger proportion of native whites. Thus the Negro groups appear better nourished than those groups that contain an excess of native whites. This is possibly due to the greater resistance on the part of the Negroes to those parasites that tend to keep down the weight.

WEIGHT DISTRIBUTION BY GROUPS OF SECTIONS (P_1)

RATIOS PER 1000

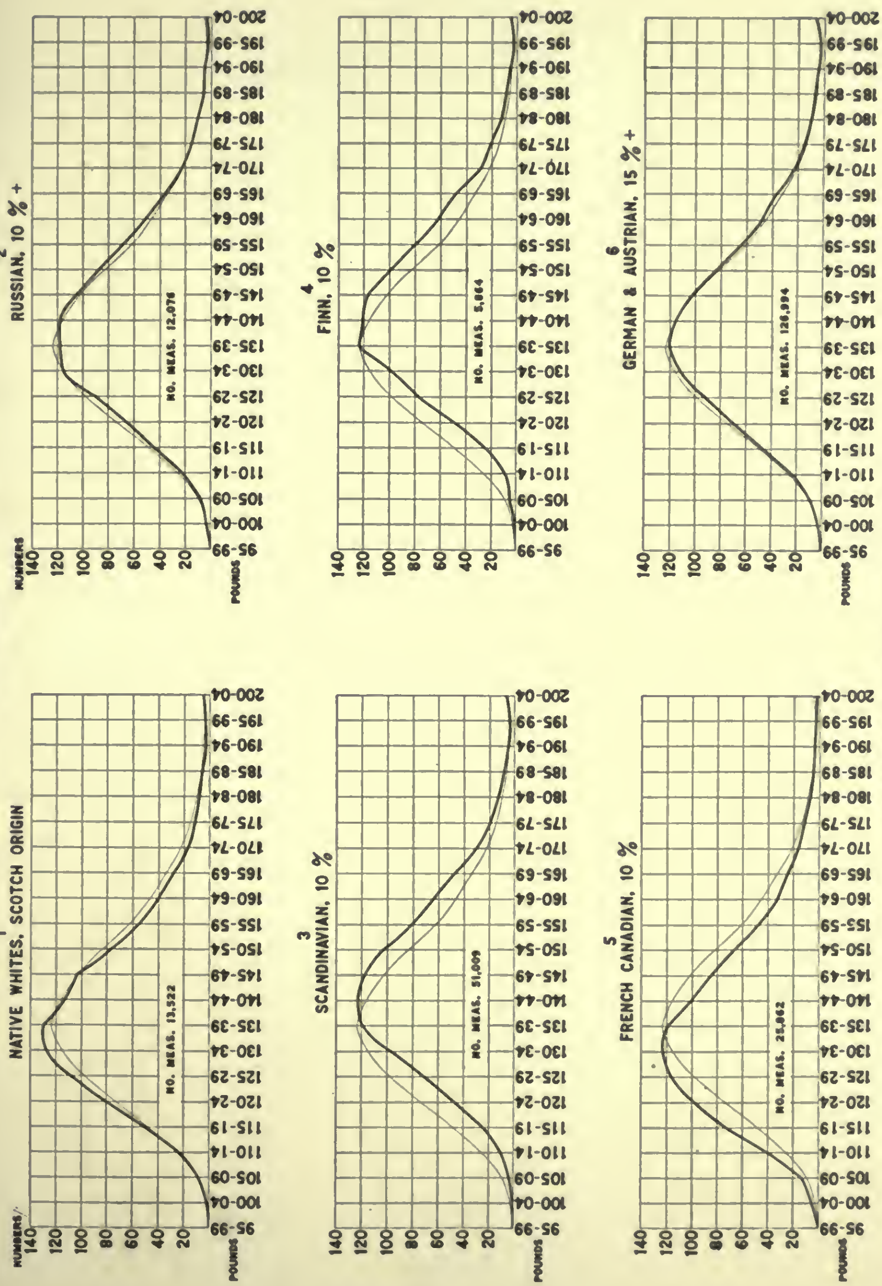


FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE VIII.

WEIGHT DISTRIBUTION BY GROUPS OF SECTIONS (P_1)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE IX.

TABLE 34.—*Mean weight by groups of sections; groups arranged in order of standing with proportional weight for each inch of height and chest circumference (expiration), for each pound of weight; also the standard deviation for each weight; first million draft recruits.*

[From Table V, p. 434.]

Group No.	Description.	Number of men measured.	Mean weight.	Standard deviation (weight).	Mean weight. / Mean height.	Mean chest. / Mean weight.	Mean weight. / Mean chest.
			Pounds.	*Pounds.*	*Pounds.*	*Inch.*	*Pounds.*
	Average for the United States....	868,445	141.54	17.42	2.097	0.234	4.260
20	German and Scandinavian, over 10 per cent..........	28,095	146.66	17.00	2.15	.230	4.350
17	Scandinavian, 10 per cent..........	51,009	146.13	16.99	2.15	.230	4.343
18	Finn, 10 per cent..........	5,864	145.76	16.86	2.16	.232	4.311
8	Sparsely settled, not more than 3 per square mile..........	16,165	144.84	16.93	2.13	.232	4.320
21	German and Austrian, over 20 per cent	38,962	143.27	18.05	2.13	.233	4.287
11	Mountain..........	17,103	142.97	16.76	2.11	.233	4.290
2	Agricultural, mixed foreign, native white..........	97,340	142.79	17.28	2.11	.234	4.277
22	German and Austrian, over 15 per cent	126,994	142.31	17.73	2.12	.234	4.271
16	Russian, 10 per cent plus..........	12,076	142.30	17.21	2.12	.235	4.264
14	Mexican, sparsely settled..........	10,779	142.18	17.36	2.09	.234	4.283
7	Mining..........	35,730	142.25	16.86	2.11	.234	4.282
9	Desert..........	6,121	142.08	17.23	2.09	.235	4.256
13	Indian, sparsely settled..........	10,038	141.89	16.91	2.08	.234	4.283
4	Agricultural Negroes, 45 per cent plus.	49,503	141.61	16.64	2.09	.234	4.266
3	Agricultural, native white, South....	117,548	141.44	16.83	2.07	.234	4.274
1	Agricultural, North, native white over 73 per cent..........	66,885	141.32	17.45	2.09	.234	4.270
10	Maritime..........	6,161	140.38	16.86	2.09	.235	4.255
12	Mountain whites..........	21,254	140.24	16.05	2.05	.237	4.225
15	Native whites of Scotch origin..........	13,522	140.26	16.77	2.06	.236	4.260
6	Commuter..........	29,032	139.79	17.66	2.09	.238	4.205
5	Eastern manufacturing..........	81,718	139.48	17.71	2.09	.238	4.204
19	French Canadian, 10 per cent..........	25,862	137.88	17.38	2.07	.240	4.172

TABLE 35.—*Weight distribution shown by groups of sections, first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Group No.	Description.	Number measured.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200 and over
1	Agricultural, North, native white over 73 per cent	66,885	8	144	566	1,648	3,313	4,863	6,669	7,979	8,538	7,788	6,634	5,315	3,934	2,927	2,156	1,437	925	615	426	357	246	397
2	Agricultural, foreign and native white	97,340	12	207	650	1,951	3,889	6,334	8,893	10,718	12,104	11,542	10,508	8,728	6,455	4,916	3,548	2,332	1,556	982	655	448	350	562
3	Agricultural, native white, South	117,548	18	259	841	2,503	5,149	8,371	11,547	14,180	15,252	14,171	12,373	9,884	7,207	5,175	3,657	2,352	1,549	947	688	438	340	647
4	Agricultural, Negroes, 45 per cent plus	49,503	13	125	363	1,119	2,144	3,377	4,853	5,618	6,109	6,077	5,287	4,444	3,128	2,386	1,670	1,023	647	436	251	145	105	183
5	Eastern manufacturing	81,718	14	325	1,028	2,736	5,188	7,090	8,810	9,782	9,816	8,926	7,436	5,838	4,293	3,159	2,346	1,584	1,078	703	508	375	312	371
6	Commuters	29,032	1	107	356	962	1,768	2,452	3,033	3,484	3,509	3,178	2,706	2,080	1,586	1,179	888	555	383	249	187	140	113	116
7	Mining	35,730	5	88	256	762	1,486	2,397	3,229	4,034	4,359	4,380	3,824	3,226	2,398	1,722	1,334	788	528	371	193	131	89	130
8	Sparsely settled, not more than 3 per square mile	16,165	....	21	72	205	462	850	1,271	1,710	1,938	2,003	1,872	1,586	1,271	905	722	436	311	188	106	82	57	97
9	Desert	6,121	....	19	56	133	238	423	569	722	764	738	638	520	406	282	216	126	92	63	34	27	13	42
10	Maritime	6,161	4	17	58	147	307	508	617	755	797	747	607	454	367	251	173	115	90	57	32	21	14	23
11	Mountain	17,099	....	25	60	282	674	1,090	1,559	1,938	2,141	2,050	1,854	1,590	1,197	847	654	404	268	181	87	64	45	89
12	Mountain whites	21,254	6	36	133	470	1,012	1,593	2,313	2,762	2,760	2,525	2,273	1,718	1,245	851	574	351	233	137	85	53	49	75
13	Indian, sparsely settled	10,038	1	43	52	186	405	727	913	1,206	1,307	1,268	1,065	799	632	475	335	238	121	77	52	39	37	60
14	Mexican, sparsely settled	10,779	....	33	97	257	464	738	978	1,245	1,296	1,288	1,097	943	685	553	375	245	167	119	65	53	30	51
15	Native white of Scotch origin	13,522	1	24	116	318	691	1,086	1,450	1,718	1,758	1,525	1,396	1,033	751	546	384	229	161	107	81	39	43	65
16	Russian, 10 per cent plus	12,076	....	39	94	271	538	789	1,091	1,399	1,423	1,425	1,265	1,057	829	622	436	274	183	130	69	65	34	43
17	Scandinavian, 10 per cent	51,009	4	44	166	541	1,264	2,388	3,625	4,917	6,075	6,262	6,003	5,271	4,148	3,286	2,461	1,608	1,006	691	447	271	211	320
18	Finn, 10 per cent	5,864	....	2	26	50	145	283	453	578	727	708	685	584	471	365	286	168	125	74	49	33	18	34
19	French Canadian, 10 per cent	25,862	5	133	349	1,044	1,888	2,528	3,004	3,181	3,085	2,618	2,215	1,724	1,239	852	652	427	323	201	131	109	87	67
20	Germans and Scandinavians, 10 per cent plus	28,095	1	24	80	286	652	1,226	1,856	2,682	3,270	3,448	3,424	2,934	2,287	1,876	1,417	948	565	395	263	144	122	195
21	Germans and Austrians, 20 per cent plus	38,962	6	108	312	800	1,674	2,489	3,387	4,231	4,678	4,515	4,141	3,354	2,589	2,011	1,520	997	655	467	296	211	171	350
22	Germans and Austrians, 15 per cent plus	126,994	42	336	1,138	2,912	5,876	8,782	11,668	14,114	15,295	14,707	13,139	10,734	8,245	6,141	4,729	2,992	2,007	1,315	900	625	465	832
	Total	867,757	141	2,159	6,869	19,583	39,227	60,384	81,788	98,953	107,001	101,889	90,442	73,816	55,363	41,327	30,533	19,629	12,973	8,505	5,605	3,870	2,951	4,749

SECTION B: RATIOS PER 1,000.

Group No.	Description.	Number measured.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200 and over.	Total.
1	Agricultural, North, native white over 73 per cent	66,885	0.12	2.15	8.46	24.64	49.53	72.71	99.71	119.29	127.65	116.44	99.19	79.46	58.82	43.76	32.23	21.48	13.83	9.19	6.37	5.34	3.68	5.94	1,000
2	Agricultural, foreign and native, white	97,340	.12	2.13	6.68	20.04	39.95	65.07	91.36	110.11	124.35	118.57	107.95	89.67	66.31	50.50	36.45	23.96	15.99	10.09	6.73	4.60	3.60	5.77	1,000
3	Agricultural, native white, South	117,548	.15	2.20	7.15	21.29	43.80	71.21	98.23	120.63	129.75	120.56	105.26	84.08	61.31	44.02	31.11	20.01	13.18	8.06	5.85	3.73	2.89	5.50	1,000
4	Agricultural, Negroes, 45 per cent plus	49,503	.26	2.53	7.33	22.60	43.31	68.22	98.03	113.49	123.41	122.76	106.80	89.77	63.19	48.20	33.74	20.67	13.07	8.81	5.07	2.93	2.12	3.70	1,000
5	Eastern manufacturing	81,718	.17	3.98	12.58	33.48	63.49	86.76	107.81	119.70	120.12	109.23	91.00	71.44	52.53	38.66	28.71	19.38	13.19	8.60	6.22	4.59	3.82	4.54	1,000
6	Commuters	29,032	.03	3.69	12.26	33.14	60.90	84.46	104.47	120.01	120.87	109.47	93.21	71.65	54.63	40.61	30.59	19.12	13.19	8.58	6.44	4.82	3.89	4.00	1,000
7	Mining	35,730	.14	2.46	7.16	21.33	41.59	67.09	90.37	112.90	122.00	122.59	107.02	90.29	67.11	48.19	37.34	22.05	14.78	10.38	5.40	3.67	2.49	3.64	1,000
8	Sparsely settled, not more than 3 per square mile	16,165	.....	1.30	4.45	12.68	28.58	52.58	78.63	105.78	119.89	123.91	115.81	98.11	78.63	55.99	44.66	26.97	19.24	11.63	6.56	5.07	3.53	6.00	1,000
9	Desert	6,121	.....	3.10	9.15	21.73	38.88	69.11	92.96	117.95	124.82	120.57	104.23	84.95	66.33	46.07	35.29	20.58	15.03	10.29	5.55	4.41	2.12	6.86	1,000
10	Maritime	6,161	.65	2.76	9.41	23.86	49.83	82.45	100.15	122.55	129.36	121.25	98.52	73.69	59.57	40.74	28.08	18.67	14.61	9.25	5.19	3.41	2.27	3.73	1,000
11	Mountain	17,099	.....	1.46	3.51	16.49	39.42	63.75	91.17	113.34	125.21	119.89	108.43	92.99	70.00	49.54	38.25	23.63	15.67	10.59	5.09	3.74	2.63	5.20	1,000
12	Mountain whites	21,254	.28	1.69	6.26	22.11	47.61	74.95	108.83	129.95	129.86	118.80	106.94	80.83	58.58	40.04	27.01	16.51	10.96	6.45	4.00	2.49	2.31	3.53	1,000
13	Indian, sparsely settled	10,038	.10	4.28	5.18	18.53	40.35	72.42	90.95	120.14	130.21	126.32	106.10	79.60	62.96	47.32	33.37	23.71	12.05	7.67	5.18	3.89	3.69	5.98	1,000
14	Mexican, sparsely settled	10,779	.....	3.06	9.00	23.84	43.05	68.47	90.73	115.50	120.23	119.49	101.77	87.48	63.55	51.30	34.79	22.73	15.49	11.04	6.03	4.92	2.78	4.73	1,000
15	Native white of Scotch origin	13,522	.07	1.77	8.58	23.52	51.10	80.31	107.23	127.05	130.01	112.78	103.24	76.39	55.54	40.38	28.40	16.94	11.91	7.91	5.99	2.88	3.18	4.81	1,000
16	Russian, 10 per cent plus	12,076	.....	3.23	7.78	22.44	44.55	65.34	90.34	115.85	117.84	118.00	104.75	87.53	68.65	51.51	36.10	22.69	15.15	10.77	5.71	5.38	2.82	3.56	1,000
17	Scandinavian, 10 per cent	51,009	.08	.86	3.25	10.61	24.78	46.82	71.07	96.39	119.10	122.76	117.69	103.33	81.32	64.42	48.25	31.52	19.72	13.55	8.76	5.31	4.14	6.27	1,000
18	Finn, 10 per cent	5,864	.....	.34	4.43	8.53	24.73	48.26	77.25	98.57	123.98	120.74	116.81	99.59	80.32	62.24	48.77	28.65	21.32	12.62	8.36	5.63	3.07	5.80	1,000
19	French Canadian, 10 per cent	25,862	.19	5.14	13.49	40.37	73.00	97.75	116.15	123.00	119.29	101.23	85.65	66.66	47.91	32.94	25.21	16.51	12.49	7.77	5.07	4.21	3.36	2.59	1,000
20	Germans and Scandinavians, 10 per cent plus	28,095	.04	.85	2.85	10.18	23.21	43.64	66.06	95.46	116.39	122.73	121.87	104.43	81.40	66.77	50.44	33.74	20.11	14.06	9.36	5.13	4.34	6.94	1,000
21	Germans and Austrians, 20 per cent plus	38,962	.15	2.77	8.01	20.53	42.96	63.88	86.93	108.59	120.07	115.88	106.28	86.08	66.45	51.61	39.01	25.59	16.81	11.99	7.60	5.42	4.39	8.98	1,000
22	Germans and Austrians, 15 per cent plus	126,994	.33	2.65	8.96	22.93	46.27	69.15	91.88	111.14	120.44	115.81	103.46	84.52	64.92	48.36	37.24	23.56	15.80	10.35	7.09	4.92	3.66	6.55	1,000
	Total	867,757	.16	2.49	7.92	22.57	45.21	69.59	94.25	114.03	123.31	117.42	104.22	85.07	63.80	47.63	35.19	22.62	14.95	9.80	6.46	4.46	3.40	5.47	1,000

10. COMPARISON OF WEIGHT IN EIGHT EUROPEAN RACES OF MEN AT DEMOBILIZATION.

For the sake of completion there are added here the results of weights taken at demobilization, 1919, in the case of eight European races. Table 37 gives the proportional distribution of different classes of weight. The order of weight is as follows:

TABLE 36.—*Mean weight and standard deviation in each of eight European races.*

Race.	Number measured.	Mean weight.		Standard deviation.	
		Kilos.	Pounds.	Kilos.	Pounds.
German	6,767	67.22	148.20	7.72	17.02
Polish	2,225	66.05	145.62	6.95	15.29
English	3,608	65.76	144.98	7.87	17.35
Scotch	1,821	65.74	144.93	7.90	17.41
Irish	4,907	64.84	142.96	7.75	17.08
French	746	64.48	142.16	7.27	16.03
Italian	3,075	62.59	137.99	7.03	15.49
Hebrew	1,531	62.53	137.85	7.27	16.03

TABLE 37.—*Comparative frequency distribution of weight in each of eight races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Weight, in pounds.										
		100–109	110–119	120–129	130–139	140–149	150–159	160–169	170–179	180–189	190–199	200 and over.
English	3,608	24	158	538	790	808	618	377	178	74	31	12
Scotch	1,821	12	79	254	436	404	308	175	89	37	19	8
Irish	4,907	34	259	796	1,233	1,151	700	407	175	89	35	28
German	6,767	16	183	678	1,406	1,589	1,351	867	399	177	55	46
French	746	7	39	123	181	183	122	59	19	5	5	3
Italian	3,075	44	274	664	845	631	362	154	65	30	5	1
Polish	2,225	4	64	245	518	599	444	212	88	36	12	3
Hebrew	1,531	24	144	341	402	325	168	71	34	11	5	6
Number measured	24,680	165	1,200	3,639	5,811	5,690	4,073	2,322	1,047	459	167	107
Not measured	3,990											
Total	28,670											

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Weight, in pounds.											
		100–109	110–119	120–129	130–139	140–149	150–159	160–169	170–179	180–189	190–199	200 and over.	Total.
English	3,608	6.65	43.80	149.11	218.96	223.94	171.29	104.49	49.34	20.51	8.59	3.33	1,000
Scotch	1,821	6.59	43.39	139.49	239.44	221.85	169.13	96.11	48.88	20.32	10.43	4.39	1,000
Irish	4,907	6.93	52.78	162.22	251.29	234.56	142.65	82.94	35.66	18.14	7.13	5.71	1,000
German	6,767	2.36	27.04	100.19	207.79	234.81	199.65	128.12	58.96	26.16	8.13	6.80	1,000
French	746	9.38	52.28	164.89	242.61	245.31	163.55	79.09	25.47	6.70	6.70	4.02	1,000
Italian	3,075	14.31	89.10	215.94	274.80	205.21	117.72	50.08	21.14	9.76	1.63	.33	1,000
Polish	2,225	1.80	28.76	110.12	232.81	269.21	199.56	95.28	39.55	16.18	5.39	1.35	1,000
Hebrew	1,531	15.68	94.06	222.72	262.57	212.28	109.73	46.37	22.21	7.19	3.27	3.92	1,000
Number measured	24,680	6.69	48.62	147.44	235.46	230.55	165.03	94.08	42.42	18.60	6.77	4.34	1,000
Not measured	3,990												
Total	28,670												

It is seen that the Germans have the highest mean weight, although they are not the tallest of the eight races. It appears also that the Hebrews are lighter in weight than the Italians, although slightly taller.

The standard deviation in weight is greatest in the Scotch, despite their average extreme stature. They show a fairly large proportion of men under 120 pounds, also they are exceeded by only two other races in the proportion of men weighing over 200 pounds. This large proportion of the extreme classes is responsible for the high standard deviation. The next highest standard deviation is seen in the English group and the third in the Irish group. The reason in the case of the Irish is fairly clear from the fact that this group contains in its composition two or more races, one of which, the Scotch-Irish, is tall and spare, and the other of which, the Celtic-Irish, is short and stocky. The least variability is found in the Polish group and next to the lowest in the Italian group. The Hebrew and French groups show the same variability despite the marked difference in average weight.

TABLE 38.—*Mean weight in five color races with the standard deviation for the white and Negro troops, demobilization, 1919.*

Race.	Number examined.	Mean weight.		Standard deviation.	
		Kilos.	Pounds.	Kilos.	Pounds.
White	79,706	65.62	144.67	7.67±0.02	16.92±0.04
Negro	3,319	67.83	149.53	8.00± .07	17.53± .15
Indian	103	68.10	150.13		
Chinese	18	67.56	148.94		
Japanese	24	65.73	144.92		

11. COMPARISON OF THE WEIGHT OF THE COLOR RACES.

A comparison of mean weights of the five color races measured at demobilization is afforded by the accompanying Table 38 taken from Tables 103, 104, and 107. It gives for the different color races the mean weight in kilograms and pounds. It appears that, though the white and Negro troops have almost exactly the same average stature, the Negro troops exceed the white in weight by about 5 pounds, and the weight is slightly more variable in the Negro troops. The Indians are on the average still heavier than the Negro troops, although from the small numbers it is probable that they are a highly selected lot. The Chinese come next in weight and the Japanese lowest with a weight of almost 145 pounds, a trifle in excess of that of the white troops.

IV. CHEST CIRCUMFERENCE.

1. GENERAL DISCUSSION.

This dimension is of both military and anthropological importance. It is of medico-military importance, first, because it may be used to measure lung capacity and, second, because it is an index of certain diseases. It is used, as will be shown later, in obtaining the index of robustness, an index which is believed to give a fair measure of vital resistance.

The medical importance of chest circumference is indicated in Section II of this work, which discusses the relation of chest circumferences to the different diseases. For example, from the summaries given there, it appears that chest circumference is small in men with pulmonary tuberculosis, and also in persons with various heart disorders. It is exceptionally large in one group of asthmatics, doubtless due to the exercise of the chest muscles in the forced breathing which is a symptom of this disease.

The Army has long laid stress upon the difference between chest circumference at expiration and full inflation. This difference is called mobility. The minimum mobility for Army purposes is usually set at 2 to 3 inches for men under 6 feet (180 centimeters) and 3 to 4 inches for men over 6 feet. (See Table 138, p. 297.) Into mobility there enters a large nervous and mental factor; not infrequently the examiners find that the subject is unable to expand the chest, not through small lung capacity but through an inability to exercise a voluntary control over the muscles of the chest. Such control may, however, usually be secured by practice. Dr. O. L. Williamson, of Mariana, Ark. (Hoffman,[16] p. 5), stated at the Conference of Physical Examination under the Selective Service (held in Chicago, June 13, 1918): "Many physically fit Negroes have not a chest mobility of 2 inches and they do not know how to expand the chest."

The occupational and racial significance of chest circumferences must not be overlooked whenever an attempt is made to draw inferences from the measurements. A comparison of our soldiers before and after training indicated how responsive chest circumference is to such training, for it increases with severe exercise of the arms and chest and diminishes in the sedentary. Thus Livi finds (Martin,[5] p. 278), that in Italy farmers have the largest chest circumference, and tailors, barbers, and students have the smallest. However, it must be recognized that natural feebleness of muscular development may be one of the causes that leads some men to abandon the farm and become barbers, students, etc.

The chest circumference is particularly important in relation to the general size of the individual, as measured by his stature. Relative chest circumference is, where possible, to be considered; i. e., chest circumference divided by total stature.

2. METHODS OF MEASUREMENT.

The measurement of chest circumference requires attention to a few technical details. The graduated tape is passed around the chest (subject's arms lifted) until it lies under armpits, over the nipples, and perpendicular to the axis of the trunk at this level. Since the axis of the trunk is rarely vertical, the tape will rarely lie horizontal. Pressure is not to be applied so as markedly to indent the flesh. The subject's arms are lowered to his sides and the reading is taken.

Differences in technique are used by different anthropometrists. The method recommended by Martin[5], (pp. 149-150) may be translated as follows:

61. Circumference of the chest in quiet breathing (Brustumfang wahrend der Atempause oder in sogenannter Normalstellung; périmètre ou circonférence thoracique; girth of chest):

The individual to be measured stands upright, holding his arms at first laterally up to the level of the shoulders. The tape is placed high in the axillæ at the level of the mesosternal (above the nipples), horizontally about the thorax, and the two ends, passing each other, are held firmly with the ends upon the chest wall. The arms are then dropped and lie quiet at the side of the body. It is necessary to take care that the tape lies horizontally everywhere, even at the back, in contact with the body, without cutting into the skin. The part of the back lying between the two scapulæ will usually not be in contact with the tape, but will be bridged over by it. It is usual in most individuals to pass over the lower angle of the scapulæ. One observes the change in the position of the tape caused by the light breathing movements for about half a minute and notes the middle position.

In many examinations, among others the military, the tape is placed about the chest just below the nipples and the lower angle of the scapulæ. Other authors measure without regard to the mesosternal and nipples, as high as possible in the axillæ. By others the level of the processus ensiformis is recommended.

3. MEAN CHEST CIRCUMFERENCE AT EXPIRATION.

The average circumference of the deflated chest for the whole United States for 873,159 recruits is 33.22 inches, or 84.38 centimeters. The mean circumference for the uninflated chest of 95,867 troops at demobilization is 34.94 inches, or 88.74 centimeters. This gives a difference of 1.72 inches, or 4.36 centimeters, in the two sets of measurements. In comparing the means for recruits and men at demobilization, it is to be kept in mind that recruits were encouraged to deflate the chest as much as possible, since there was sought not merely the chest circumference but also the chest mobility. In the measurements of men at demobilization, instructions were that the chest should be in a quiescent condition, that is, neither inflated nor uninflated, as far as possible. However, since the difference in circumference of the quiescent chest and that from which the air has been driven as far as possible is usually between ½ and 1½ inches and averages about ¾ inch, only about 1 inch of the added chest girth is to be ascribed to the intensive training which the troops have received. This tended on the one hand to develop the lung capacity and on the other to develop the muscles of the chest and particularly those attached to the scapulæ.

The foregoing measurements of chest circumference are absolute. One may reduce them to relative measurements by dividing the average chest circumference by the average stature, both for men at mobilization and at demobilization. The relative chest circumference obtained in this way gives for men (deflated chest) at mobilization 49.2 per cent, and for men at demobilization (quiescent chest) 51.6 per cent.

The relation between the distribution of chest circumference of men of different statures and that of the whole population of recruits is shown graphically in Plate XIII. As is to be expected, the chest circumference for the shorter statures is below the distributions for the statures 67–68 inches, which are close to the average. For statures above this they are clearly above the average. The curve of distribution of chest circumference of men 62 inches tall is seen to be highly unsymmetrical owing to the fact that chest circumferences which were 3 or more inches below the average in the case of short men were rejected, whereas chest circumferences 3 or more inches up to 8 inches above the average for any stature were accepted. This elimination of the extremes results in a high mode for men with short statures. They form a less variable group than the men with mediocre or taller statures.

4. COMPARISON WITH CIVIL WAR DATA.

The Civil War statistics, obtained by Gould[2] (p. 280), give a mean circumference of chest at expiration, for white soldiers, of 34.49 inches. The mean girth at expiration of chest of recruits, according to Baxter[1] (Vol. I, p. 32), was 33.53 inches, or 85.17 centimeters, a very great discrepancy, which is doubtless due to the fact that Gould's measurements were made at demobilization, whereas Baxter's statistics were of 500,000 drafted men taken from a population greatly depleted by volunteers Thus Baxter's and Gould's measurements largely stand to each other as do ours of recruits and men at demobilization. In both cases the increase of circumferences after training is about one inch.

Comparing the recruits of Civil War times and 55 years later, we see a decrease of .3 inches in the latter group. Comparing men at demobilization, there is an increase of about one-half inch in the latter group, which difference is accounted for by the measurement at rest, rather than at expiration. Chest circumference has probably not diminished as much as stature.

5. COMPARISON WITH OTHER COUNTRIES.

For comparing the chest circumferences of our recruits with those of other countries, the following measurements will be of interest, probably all taken on the chest at rest, mostly from Martin[5] (p. 278): Russians, 81 centimeters; Serbs, 80 centimeters; Bulgarians, 81 centimeters; English, 88.9 centimeters; Chinese, 77.5 centimeters; French, 88.7 centimeters; Bavarians (Ammon,[18] p. 247), 87 centimeters.

Thus the chest circumference of our troops at demobilization exceeds, with a single exception, all the averages of different races as given. For the other races the dimensions lie either between those of our recruits and those of our veterans or else below the circumference of the recruits.

The relative chest circumference is more important in its racial variation than the absolute chest circumference. The following relative chest circumferences are given by Martin[5] (p. 279): Russian Jews, 49.7; Belgians, 52.8: French, 53.7; Letts, 56.

Thus in the series given of the relative chest circumferences of European races all (except one) exceed that of our recruits and are equal to those of our veterans.

TABLE 39.—*Frequency and proportional distribution of chest circumferences (expiration) at mobilization, 1917–1918, and of chest circumference (rest) at demobilization, 1919.*

Chest circumference, in inches.	Mobilization.		Demobilization.							
			Whites only.				White and colored.			
	Number of men measured.	Ratio per 1,000.	Chest circumference, in centimeters.	Chest circumference, in inches, approximate.	Number of men measured.	Ratio per 1,000.	Chest circumference, in centimeters.	Chest circumference, in inches.	Number of men measured.	Ratio per 1,000.
28 and under	....	....	68– 73	27–28	195	2.04	68– 77	26.77–30.32	731	8.80
29	18,093	20.74	74– 75	29	165	1.72	78– 81	30.71–31.89	4,399	52.99
30	49,090	56.22	76– 77	30	484	5.05	82– 85	32.28–33.46	16,383	197.32
31	103,294	118.30	78– 79	31	1,354	14.12	86– 89	33.86–35.04	26,745	322.13
			80– 81	31	3,746	39.08	90– 93	35.43–36.61	30,898	251.71
32	159,379	182.54	82– 83	32	7,259	75.72	94– 97	37.01–38.19	9,767	117.64
33	175,858	201.42	84– 85	33	11,688	121.92	98–101	38.58–39.76	3,131	37.71
34	152,663	174.85	86– 87	34	14,576	152.05	102 and over.	40.16 and over.	971	11.70
35	103,414	118.42	88– 89	35	16,172	168.69	....	....	....	....
			90– 91	35	13,702	142.93	....	....	....	....
36	59,015	67.60	92– 93	36	10,553	110.08	....	....	....	....
37	28,175	32.27	94– 95	37	7,057	73.61	....	....	....	....
38	13,151	15.06	96– 97	38	4,184	43.65	....	....	....	....
39	11,027	12.63	98– 99	39	2,522	26.31	....	....	....	....
40 and over	....	....	100–117	40 and over.	2,210	23.05	....	....	....	....
Total measured.	873,159	....	....	....	95,867	....	....	....	83,025	1,000.00

TABLE 39.—*Frequency and proportional distribution of chest circumferences (expiration) at mobilization, 1917–1918, and of chest circumference (rest) at demobilization, 1919*—Continued.

	Mean chest circumference—			
	At mobilization (deflated).		At demobilization (at rest).	
	Inches.	Centimeters.	Inches.	Centimeters.
Mean chest circumference, white and colored	33.22	84.38	34.94	88.74
Standard deviation:				
White and colored	2.01	5.11		
White			2.04	5.09
Negro			1.87	4.76

6. DISTRIBUTION OF FREQUENCIES OF VARIOUS CLASSES OF CHEST CIRCUMFERENCE.

Table 39 gives for recruits and veterans the distribution of frequencies of the different classes of chest circumference in inches or in centimeters. The frequency is given in absolute numbers of men measured and also in the ratio per thousand. It is to be recalled that about three-fourths of an inch has to be added to the chest circumference at mobilization to make the measurements comparable with those taken at demobilization. Even after making this correction the great superiority of veterans over recruits is strikingly apparent. The mode for white veterans is at 35 inches instead of 33 plus; 23 per mille were found at 40 and over instead of practically none at all. Only 5 per mille of white veterans had a chest circumference of 30 inches; while 20 per mille of recruits had a circumference of 29 inches.

Also the standard deviation of the recruits (deflated chest) was 2.01 inches, and that of the white veterans 5.093 centimeters, or 2.04 inches. The coefficients of variation are respectively 6.05 and 5.86. That is, the chest circumferences of the veterans were much less variable than those of the recruits—doubtless due to the greater uniformity of conditions under which they had been trained.

There is given for comparison, extracted from Table XCIX, the distribution of chest circumference for 95,867 white men measured at demobilization. In this case the classes are in centimeters and here also is given the nearest corresponding English measure.

7. THE FREQUENCY DISTRIBUTION OF CHEST CIRCUMFERENCE, BY STATES.

Table 40 gives the mean chest circumference for recruits from each of the States, arranged in descending order of size of chest. In this table, North Dakota stands at the top with a mean chest circumference of 33.76 inches, over half an inch above the average. This great size of chest is associated with a robustness which is higher for this State than for any other of the United States proper. Next on the list stands Nevada, a State which has a high, though not extremely high, relative chest circumference. This is followed by Idaho, of which the relative chest circumference falls at the bottom of the upper third.

People from these States are therefore not especially stout, but have an absolutely large chest circumference, which is due probably to a combination of muscular activity, especially of the arms, and the rarified air of these States of high altitude. The inhabitants of Nevada and Idaho are largely miners, and no doubt that part of the population which is engaged in mining has acquired especially large chest circumference. At the same time these men, especially of Idaho, are above the average in stature and consequently have a high absolute chest circumference. Among the other States and Territories at the top of the list are Alaska, 33.65; Minnesota, Wisconsin, and North Dakota, which include men of exceptional robustness. These are followed by other States of the Northwest—Oregon, Montana, and Washington. At the bottom of the list lies the District of Columbia, the most urban of all of the States and Territories listed. Indeed, the District falls in a class by itself. The small chest circumference is no doubt due largely to the comparative lack of use of the muscles of the chest by an urban population, especially one in which the males are so largely engaged in clerical occupations. Next above comes Rhode Island, the second most urban of all of the States and one which stands at the bottom both in height and weight of its drafted men. The chest circumference in relation to stature is not extremely low; the small chest circumference is therefore due primarily to the small size of the inhabitants. Next come the States of Tennessee and Kentucky, with tall men of low weight and of extraordinarily small chest circumference. In fact, at the bottom of the table one finds a group of Southern States, including Alabama, Florida, Louisiana, Mississippi, and Missouri, the inhabitants of which are characterized by lankiness of form, which shows itself also in their low average chest circumference. The question arises how far this small chest circumference is influenced by the Negro population. From a set of measurements made at demobilization, it appears that the Negro troops have indeed a smaller chest circumference than white troops, as 34.64 to 34.96. These averages are, to be sure, very much higher than those obtained by local boards, but this is due to the training which the returned soldiers had undergone in the preceding months. There is no reason for thinking that the Negro troops were less active than the whites, and yet their mean chest circumference is 0.32 inch less than that of the whites. We may conclude therefore that the Negro population has a lower chest circumference than the white population; and since, in the Southern States, the Negro forms a relatively large proportion of the population, the low average chest circumference of men from the Gulf States is to be partly attributed to the presence in them of small-chested colored men. Among the States occupying a relatively low position for chest circumference is Colorado, the State which stood near the top in the number of rejections for tuberculosis of the lungs. The figures suggest that the well-known small chest circumference of the tuberculous has been influential in reducing the average chest circumference of men from Colorado. The small chest circumference of men from Massachusetts is largely due to their small size, since the relative chest circumference is high in them.

TABLE 40.—*Mean chest circumference (expiration), by States; States arranged in order of standing, with proportional chest circumference at expiration in inches for each inch of height and each pound of weight; also the proportional weight in pounds for each inch of chest circumference; first million draft recruits.*

State.	Number of men measured.	Mean chest.	Mean chest. / Mean height.	Mean chest. / Mean weight.	Mean weight. / Mean chest.
		Inches.	*Inch.*	*Inch.*	*Pounds.*
North Dakota	6,444	33.76	0.497	0.230	4.353
Nevada	1,441	33.75	.497	.232	4.307
Idaho	4,031	33.74	.495	.232	4.307
Alaska	106	33.65	.493	.223	4.472
Minnesota	27,341	33.63	.494	.230	4.354
Wisconsin	18,433	33.55	.496	.232	4.307
South Dakota	3,892	33.54	.493	.228	4.382
Oregon	2,748	33.51	.492	.228	4.368
Montana	11,648	33.47	.492	.228	4.372
Washington	11,316	33.46	.492	.230	4.347
Connecticut	13,585	33.43	.501	.239	4.182
Vermont	2,077	33.43	.498	.238	4.198
Iowa	19,537	33.41	.491	.230	4.332
Maine	3,315	33.41	.497	.237	4.221
California	35,461	33.39	.493	.231	4.312
Wyoming	1,927	33.38	.492	.231	4.332
Michigan	41,872	33.35	.496	.235	4.258
New Jersey	29,958	33.29	.498	.239	4.170
West Virginia	12,367	33.29	.490	.235	4.251
Illinois	69,491	33.28	.493	.234	4.260
Kansas	9,571	33.28	.487	.231	4.319
Arizona	3,850	33.26	.488	.232	4.301
North Carolina	14,668	33.25	.487	.235	4.255
Nebraska	10,774	33.24	.488	.229	4.354
New York	87,818	33.22	.497	.238	4.200
Georgia	20,305	33.21	.488	.235	4.241
New Hampshire	2,240	33.20	.495	.236	4.227
Virginia	17,616	33.18	.489	.236	4.230
Arkansas	10,111	33.17	.486	.234	4.259
Oklahoma	19,429	33.16	.485	.232	4.293
Indiana	23,194	33.14	.489	.233	4.274
New Mexico	2,690	33.14	.491	.239	4.178
Utah	4,568	33.14	.488	.231	4.319
Ohio	52,814	33.12	.491	.234	4.268
Delaware	1,891	33.11	.492	.237	4.212
Maryland	9,192	33.11	.494	.236	4.240
Massachusetts	29,534	33.10	.496	.239	4.281
South Carolina	9,343	33.10	.489	.235	4.244
Pennsylvania	77,186	33.10	.496	.236	4.221
Missouri	24,964	33.08	.486	.233	4.275
Mississippi	8,543	33.08	.485	.231	4.330
Louisiana	12,356	33.08	.489	.236	4.221
Colorado	6,635	33.07	.485	.234	4.265
Florida	5,895	33.06	.489	.237	4.214
Alabama	15,988	33.03	.485	.233	4.277
Texas	34,531	33.02	.483	.232	4.307
Kentucky	15,502	32.98	.484	.235	4.245
Tennessee	14,426	32.97	.483	.235	4.249
Rhode Island	3,928	32.83	.494	.241	4.156
District of Columbia	4,486	32.66	.482	.232	4.303

TABLE 41.—*Chest circumference (expiration) of native American white draft recruits of Civil War.*

[From Baxter,[1] Vol. I, p. 32, rearranged.]

State.	Inches.	Centimeters.	State.	Inches.	Centimeters.
Nevada	34.38	87.33	Illinois	33.65	85.48
Delaware	34.25	86.98	New Hampshire	33.60	85.34
California	34.11	86.63	Wisconsin	33.51	85.10
Minnesota	34.02	86.41	Michigan	33.50	85.08
Kansas	33.99	86.34	Pennsylvania	33.49	85.07
Kentucky	33.98	86.30	Vermont	33.38	84.77
Missouri	33.90	86.11	West Virginia	33.07	83.99
Maryland	33.90	86.10	New York	32.91	83.59
Iowa	33.87	86.02	Connecticut	32.57	82.74
Maine	33.81	85.87	New Jersey	32.33	82.11
Indiana	33.70	85.59	Rhode Island	32.27	81.97
Ohio	33.66	85.50	Massachusetts	31.99	81.25
District of Columbia	33.66	85.49			

In Table 42 the different States are arranged in order of the relative chest circumference obtained by dividing the mean chest circumference of each State by the mean height of men from that State. In this table the State showing the highest ratio of chest circumference to mean height is Connecticut. This is partly due to the small stature of the men of Connecticut and partly to the large chest circumference they show. This large chest circumference is more striking for men of the agricultural part of Connecticut than of the manufacturing area. It appears that Connecticut stands at the top of the list for relative chest circumference because it contains so many small men who are engaged in agricultural occupations and others involving exercise of the upper appendages and upper trunk. Vermont comes second in the list, again an agricultural State, comprising many persons of small size. New Jersey and Maine come next and their position is to be explained in similar fashion. Next in order comes North Dakota. Here, despite the great average stature of the inhabitants, the chest circumference is relatively large, again associated with the agricultural activity of this magnificently proportioned population. This is followed by a mixture of mining and agricultural States in which the population is largely engaged in occupations involving use of the upper part of the body.

At the other extreme of the table stands first the District of Columbia for reasons already put forward in accounting for the small absolute chest circumference of its population. Next come certain States containing very tall men, such as Tennessee, Texas, Kentucky, in which the chest circumference has not increased in proportion to the great stature. The ratio is small, partly because it is very small in the mountain-white sections of these States. Possibly hookworm has an important influence in keeping down the relative chest circumference. In the lower part of the table lie also Alabama, Mississippi, Missouri, Arkansas, North Carolina, and other Southern States, probably largely because of the admixture of Negroes who, as we have seen, have a relatively smaller chest circumference and about the same average stature as the whites.

The relative small chest circumference of the draft recruits from the Southern States is due in part to the fact, as shown in Plate XIV, figure 1, that the proportion of the chest circumference (expiration) to the stature increases as the stature decreases.

TABLE 42.—*Relative chest circumference (mean chest circumference divided by mean stature), by States, arranged in order of standing, first million draft recruits.*

States.	Relative chest circumference.	States.	Relative chest circumference.
Connecticut	0.501	Iowa	0.491
Vermont	.498	New Mexico	.491
New Jersey	.498	Ohio	.491
Maine	.497	West Virginia	.490
North Dakota	.497	Virginia	.489
Nevada	.497	Indiana	.489
New York	.497	South Carolina	.489
Pennsylvania	.496	Louisiana	.489
Wisconsin	.496	Florida	.489
Michigan	.496	Arizona	.488
Massachusetts	.496	Nebraska	.488
Idaho	.495	Utah	.488
New Hampshire	.495	Georgia	.488
Minnesota	.494	Kansas	.487
Maryland	.494	North Carolina	.487
Rhode Island	.494	Arkansas	.486
Alaska	.493	Missouri	.486
South Dakota	.493	Oklahoma	.485
California	.493	Mississippi	.485
Illinois	.493	Colorado	.485
Oregon	.492	Alabama	.485
Montana	.492	Kentucky	.484
Washington	.492	Texas	.483
Wyoming	.492	Tennessee	.483
Delaware	.492	District of Columbia	.482

8. MEAN CHEST CIRCUMFERENCE BY SECTIONS.

Table 43 gives the chest circumference for each of the sections into which the country has been divided, arranged in order of size of chest circumference, the largest being placed first. The average for the whole United States is 33.22 inches. We find that more than half of the sections have a chest circumference above the mean. At the top of the table stand three rural districts of Minnesota, comprising a large proportion of Scandinavians. That Minnesota as a whole does not occupy the first position is due to the reduction in stature of men from her large cities. Next comes North Dakota 2, largely Scandinavians, and next the mining area of California 2. The mining States of Nevada 1 and Idaho 1, as already shown, have a high average chest girth, as has also South Dakota 3, containing a large proportion of Indians. Next comes Wisconsin 4, containing a large proportion of Germans. The mountainous region of New Hampshire 1 comes next and this is followed by three sections containing Scandinavian and rural Russian population. The foregoing sections have a mean chest circumference about 0.5 inch above the average. These are followed by a number of sections among which the mountain areas are strikingly prevalent, followed by several agricultural areas more largely of native white population. In the middle of the list stand many sections with a large Negro population. At the very bottom of the list stands New Orleans (Louisiana 2), in which the chest circumference is 32.63—less than the men from the District of Columbia. The ratio of mean chest to stature, however, is greater than in the District of Columbia. Next to the bottom of the table lies New Mexico 3, with its noteworthy Mexican element, in which not only the stature but also the relative chest circumference is small. This is followed by the District of Columbia and by the Key West Section (Florida 3), containing many Italians and Cubans. The district around Mobile (Alabama 5) affords a population with chest circumference of only 32.82, and indeed many southern sections, especially those containing few Negroes, are found in the lower part of the table. Rather striking is the position, toward the bottom, of Denver (Colorado 5), (associated with a large number of rejections for tuberculosis) and Philadelphia (Pennsylvania 1), Cincinnati (Ohio 4), St. Louis (Missouri 4), Baltimore (Maryland 1), Los Angeles (California 4), Boston (Massachusetts 4), and even New York city (New York 2), (mean chest girth, 33.14). It is clear that the inhabitants of cities tend to have reduced chest girth, possibly due to a smaller amount of exercise of the upper appendages and to the small races that congregate in them. This is illustrated by comparing the twin cities of Minnesota with the rest of the State. The men of the former have a chest circumference about 0.75 inch less than the latter.

TABLE 43.—*Mean chest circumference (expiration) by sections; sections arranged in order of standing with proportional chest circumference (expiration) in inches for each inch of height and each pound of weight; also standard deviation for each chest circumference; first million draft recruits.*

State.	Section.	Characteristics of sections.	Number of men measured.	Mean chest.	Standard deviation. (chest).	Mean chest. / Mean height.	Mean chest. / Mean weight.
				Inches.	*Inches.*	*Inch.*	*Inch.*
Average for United States.	......	....	873,159	33.22	2.01	0.492	0.234
Minnesota........	3	Scandinavians and Finns.............	3,515	33.95	1.98	.502	.232
Do...........	2	German and Scandinavian population.	7,585	33.86	1.93	.497	.229
Do...........	1	Scandinavian population..............	6,448	33.86	1.86	.495	.228
North Dakota....	2	.....do..................................	3,305	33.82	1.88	.497	.230
California........	2	Mining area...........................	942	33.81	1.87	.499	.231
Nevada..........	1	State undivided, sparse population....	1,438	33.75	2.08	.497	.232
Idaho............	1	State undivided.......................	4,031	33.74	2.04	.495	.232
South Dakota....	3	Indian population......................	247	33.74	1.74	.495	.228
Wisconsin........	4	Lake counties..........................	2,883	33.73	2.01	.500	.234
New Hampshire..	1	Mountainous area.....................	667	33.72	2.09	.501	.238
North Dakota....	1	Scandinavian and Canadian population	1,131	33.72	1.91	.498	.230
Do...........	3	Russian population....................	2,005	33.70	1.86	.496	.228
Wisconsin........	1	Scandinavian and German population	3,290	33.68	1.89	.494	.232
Alaska...........	All.	Undivided..............................	106	33.65	1.94	.493	.223
Maine............	2	Native white stock, maritime.........	828	33.64	1.95	.497	.237
North Carolina...	1	Sparsely populated mountainous area.	2,738	33.64	1.82	.489	.238
Michigan.........	1	Finnish population.....................	2,340	33.63	1.96	.501	.232
Washington......	3	Mountainous area.....................	1,539	33.62	1.83	.493	.230
South Dakota....	2	Large Russian population.............	594	33.61	1.87	.495	.228
Montana.........	2	Sparsely settled, mountainous area....	6,521	33.60	1.85	.493	.229
Utah.............	1	Sparsely populated.....................	1,224	33.59	1.82	.492	.233
Connecticut......	1	Prevailingly agricultural and near metropolitan.	4,877	33.58	2.10	.503	.240
Wisconsin........	2	German population....................	7,678	33.56	1.97	.495	.232
Iowa.............	1	Foreign white, German and Scandinavian.	12,139	33.54	1.93	.492	.230
Oregon...........	1	Fairly densely populated..............	2,747	33.54	2.10	.492	.228
New Jersey.......	3	Mountainous area plus Atlantic County	3,196	33.52	2.02	.501	.240
California........	1	Chiefly agricultural area..............	11,712	33.52	2.06	.494	.231
South Dakota....	1	Dry farming area......................	3,050	33.51	1.95	.492	.228
Indiana..........	2	Agricultural, considerable German....	835	33.49	2.01	.491	.231
Michigan.........	3	Foreign population....................	6,290	33.49	2.09	.497	.235
California........	3	Sparsely populated....................	2,106	33.48	1.97	.490	.231
New York........	7	Agricultural and dairying.............	6,465	33.48	2.06	.496	.236
Washington......	1	Coastal region plus eastern counties...	5,174	33.47	2.02	.492	.230
Maine............	1	English Canadian......................	1,238	33.46	1.86	.497	.235
Indiana..........	1	Manufacturing.........................	3,609	33.45	2.12	.497	.235
Utah.............	3	Mining area...........................	562	33.44	1.77	.494	.232
Vermont.........	1	State undivided.......................	2,079	33.43	1.90	.498	.238
Michigan.........	2	Prevailingly native white population..	12,560	33.42	1.98	.493	.235
Illinois...........	8	Agricultural and manufacturing area..	2,451	33.42	1.98	.493	.233
Oregon...........	2	Columbia River Valley and coastal dry plain, sparsely populated.	1,076	33.42	1.91	.490	.229
Nebraska.........	2	German, Austrian, and Russian stocks.	3,138	33.41	1.95	.489	.229
Washington......	2	Puget Sound, foreign white...........	6,599	33.41	1.96	.492	.230
Illinois...........	4	Largely German population...........	4,238	33.40	2.03	.494	.233

TABLE 43.—*Mean chest circumference (expiration) by sections; sections arranged in order of standing with proportional chest circumference (expiration) in inches for each inch of height and each pound of weight; also standard deviation for each chest circumference; first million draft recruits*—Contd.

State.	Section.	Characteristics of sections.	Number of men measured.	Mean chest.	Standard deviation (chest).	Mean chest. / Mean height.	Mean chest. / Mean weight.
				Inches.	*Inches.*	*Inch.*	*Inch.*
Illinois	2	Mixed native and foreign population	7,803	33.40	2.03	0.494	0.233
New Jersey	2	Plains section, rural	8,985	33.40	2.12	.499	.240
Texas	3	German and Negro population	1,415	33.40	2.09	.488	.231
Maryland	3	Large white population	2,675	33.39	1.99	.496	.237
Illinois	1	Densely populated	7,803	33.38	2.02	.495	.233
Wyoming	1	State undivided, sparsely populated	1,927	33.38	1.89	.492	.231
Texas	5	Large Negro population	1,346	33.36	2.05	.487	.231
Virginia	3	Native rural region	3,866	33.36	1.94	.489	.237
New York	6	Urban area	6,544	33.35	2.08	.498	.234
Connecticut	2	Manufacturing area	8,708	33.34	2.20	.499	.238
New York	8	Mountainous, Adirondack area	2,986	33.34	2.00	.497	.237
Virginia	4	Mountain, white	5,499	33.33	1.87	.489	.238
Georgia	2	Large Negro population	10,070	33.33	1.91	.490	.236
Illinois	7	Agricultural area	5,442	33.33	1.98	.491	.234
Wisconsin	3	Urban and foreign stock	4,513	33.33	2.11	.497	.237
New York	3	Eastern manufacturing region	5,131	33.32	2.07	.498	.238
Pennsylvania	3	Mining area	7,293	33.32	2.10	.500	.236
California	5	Urban area	7,189	33.32	2.09	.495	.231
Colorado	1	Large native white population	1,053	33.32	1.77	.489	.235
Montana	1	Mining area, foreign population	5,117	33.31	1.93	.491	.229
Colorado	2	Russian population	1,099	33.30	1.75	.490	.234
Missouri	3	Native white, Ozark region	1,138	33.30	1.76	.485	.234
Arkansas	2	Large native white population, hill country.	1,559	33.29	1.80	.484	.236
Louisiana	1	Mississippi bottoms and upland, large Negro population.	4,072	33.29	1.97	.491	.236
Pennsylvania	6	Rural area	8,616	33.29	1.98	.494	.235
Kansas	2	Native and German population	8,505	33.28	1.99	.488	.231
Arizona	1	Large Indian population, sparsely settled.	1,027	33.28	1.91	.489	.232
Alabama	2	Large Negro population	3,327	33.27	1.90	.489	.233
New Mexico	2	Native white population	1,851	33.26	1.84	.493	.240
Arizona	2	Chiefly white population	2,821	33.25	1.99	.487	.232
Illinois	5	Urban area	33,905	33.25	2.12	.495	.236
New Mexico	1	Indian population	290	33.25	1.84	.494	.239
Texas	1	Large Mexican population	6,676	33.24	1.98	.487	.234
Kansas	1	Russian population	1,066	33.24	2.68	.486	.229
North Carolina	5	Island and peninsular area	254	33.24	1.84	.491	.235
Mississippi	1	Rural area, large Negro population	5,149	33.24	1.88	.488	.231
New York	4	Western manufacturing region	14,222	33.23	2.13	.495	.236
Oklahoma	2	Chiefly white population	10,958	33.22	1.95	.485	.232
Maine	3	French Canadian population	1,247	33.22	1.93	.495	.238
Colorado	3	English population	380	33.21	1.86	.487	.233
South Carolina	2	Large Negro population	3,976	33.20	1.85	.490	.234
Iowa	2	Native white	7,404	33.20	1.92	.488	.231
Ohio	1	Dense foreign population	17,208	33.20	2.08	.495	.234
West Virginia	1	Mountainous area	1,506	33.20	1.87	.488	.236
Kentucky	1	Mountainous area, native white	4,029	33.19	1.80	.486	.237
New Jersey	1	Densely populated	17,772	33.19	2.12	.497	.239
Arkansas	1	Negro, Mississippi bottoms	4,933	33.18	1.95	.487	.233
Florida	4	Peninsular	2,339	33.18	1.95	.491	.237
Do	2	Negro and rural population	995	33.18	2.02	.490	.236
Michigan	4	Urban area	17,751	33.18	2.08	.496	.235
Minnesota	4	Urban area, "Twin Cities"	9,757	33.18	2.01	.489	.230
North Carolina	2	Intermediate	4,309	33.18	1.90	.486	.235
Pennsylvania	2	Rural area, native stock	14,218	33.18	2.02	.497	.237
Nebraska	1	German and Irish, foreign stocks	7,621	33.17	1.93	.488	.230
New York	5	Mountainous, Catskill region	795	33.17	2.01	.493	.238
Louisiana	3	Rural, chiefly white population	5,227	33.17	1.87	.488	.236
Texas	4	Coastal native population	2,722	33.16	1.99	.487	.233
Alabama	4	Large Negro population	665	33.16	1.84	.486	.229
New York	1	Suburban territory	4,919	33.16	2.08	.497	.238
North Carolina	3	Native white of Scotch origin	2,050	33.16	1.82	.485	.234
Do	6	Remainder of State	744	33.16	1.85	.489	.235
Massachusetts	2	Manufacturing center	18,352	33.15	2.04	.497	.241
North Carolina	4	Large Negro population	4,558	33.15	1.91	.489	.233
Pennsylvania	4	Coal mining	4,813	33.15	2.00	.496	.235
Do	5	Manufacturing	8,892	33.15	1.98	.497	.235
Michigan	5	Dutch and other foreign population	2,889	33.14	1.96	.491	.235
New York	2	Urban area, densely populated	46,651	33.14	2.15	.498	.239
Colorado	4	Prevailing agricultural	1,222	33.14	1.88	.486	.233
Ohio	3	Agricultural area	17,548	33.13	2.00	.489	.234
Missouri	1	Native white, agricultural	13,571	33.11	1.90	.486	.234
Do	2	Mississippi bottoms, considerable Negro population.	3,448	33.11	1.89	.486	.233
Delaware	1	State undivided	1,891	33.11	1.97	.492	.237
Georgia	1	Mixed population, native white predominating.	10,235	33.10	1.88	.486	.235

TABLE 43.—*Mean chest circumference (expiration) by sections; sections arranged in order of standing with proportional chest circumference (expiration) in inches for each inch of height and each pound of weight; also standard deviation for each chest circumference; first million draft recruits*—Contd.

State.	Section.	Characteristics of sections.	Number of men measured.	Mean chest.	Standard deviation. (chest).	Mean chest. / Mean height.	Mean chest. / Mean weight.
				Inches.	*Inches.*	*Inch.*	*Inch.*
Arkansas	3	Large native white population	3,589	33.10	1.78	0.485	0.235
Oklahoma	1	Marked Indian and Negro population	8,471	33.09	1.87	.485	.233
Virginia	2	Large Negro population	5,339	33.07	1.89	.490	.236
Alabama	3	Large native white population	2,666	33.07	1.80	.484	.235
Illinois	3	Agricultural area, native	8,900	33.07	1.94	.487	.232
Indiana	3	Agricultural area, native stock	18,725	33.06	2.00	.487	.233
Ohio	2	Intermediate	14,443	33.06	1.98	.491	.234
Massachusetts	4	Urban area	8,553	33.06	2.14	.494	.237
South Carolina	3	Peninsular and rural areas	3,795	33.05	1.85	.491	.238
California	4	Urban area	7,428	33.04	2.02	.487	.234
Tennessee	2	Agricultural region	6,305	33.02	1.85	.484	.237
Pennsylvania	7	Allegheny County plus a small rural area.	17,238	33.01	2.08	.495	.236
Maryland	2	Peninsular area	1,066	33.00	1.88	.490	.236
Do	1	Urban area	5,420	32.99	2.08	.493	.235
New Hampshire	2	Manufacturing area	1,581	32.98	2.00	.493	.237
South Carolina	1	Native white	1,563	32.97	1.83	.484	.235
Missouri	4	Urban area	6,784	32.96	2.07	.488	.235
Ohio	4	do	3,554	32.96	2.09	.489	.232
Tennessee	3	Mountainous region	5,898	32.93	1.85	.481	.231
Alabama	1	Mining and manufacturing area	8,833	32.93	1.84	.484	.233
Florida	1	Largely white and maritime	2,477	32.92	1.83	.486	.237
Pennsylvania	1	Urban area	16,053	32.91	2.02	.494	.239
Massachusetts	1	Mountainous area	1,373	32.90	2.09	.492	.237
Kentucky	2	Agricultural area	11,419	32.90	1.91	.484	.234
Tennessee	1	Negroes, Mississippi bottoms	2,217	32.90	1.84	.483	.232
Texas	2	Sparsely settled, white	22,372	32.90	1.95	.480	.231
Utah	2	More densely populated	2,781	32.89	1.88	.485	.230
Massachusetts	3	Peninsular region	1,123	32.88	2.12	.491	.237
Colorado	5	Urban population	1,640	32.88	1.83	.485	.234
Illinois	6	Negro population (Egypt)	409	32.87	1.95	.482	.236
Virginia	1	Peninsular region and east shore	2,886	32.84	2.05	.487	.233
Mississippi	2	Rural area, large native white population.	3,387	32.83	1.86	.480	.231
Rhode Island	1	State undivided	3,925	32.83	2.11	.494	.241
Alabama	5	Urban and suburban area	479	32.82	1.96	.485	.234
Colorado	6	Austrian and Italian population	1,224	32.79	1.89	.484	.235
Florida	3	Cuban, Spanish, West Indian population.	84	32.74	1.99	.487	.240
Dis. of Columbia	1	District undivided	4,486	32.66	2.00	.482	.232
New Mexico	3	Noteworthy Mexican element	540	32.63	1.85	.480	.234
Louisiana	2	Urban area	3,040	32.63	2.09	.487	.237

9. STANDARD DEVIATIONS OF CHEST CIRCUMFERENCE BY SECTIONS.

Table 44 shows the variations in the standard deviations of chest circumference for the various sections. For the United States as a whole the standard deviation is close to 2 inches. In western Kansas it is 2.68 inches, a high variability associated with the mixture of Germans and large Scandinavians, on the one hand, and of smaller Russians on the other. In manufacturing Connecticut, in New York City, Boston, Chicago, suburban New Jersey, and Rhode Island, the standard deviation is also high. In general, the eastern cities attract both extremes in body size. Greater uniformity (smaller standard deviation) is found in the Southern States. Extremely low variability is found in South Dakota 3, with 87 per cent Indians; Colorado 2; and Missouri 3, the Ozark Mountains, 94 per cent native whites and mostly big men.

TABLE 44.—*The standard deviation of chest circumference (expiration), by sections, arranged in order of standing, first million draft recruits.*

State.	Section.	Standard deviation.
United States		2.01
Kansas	1	2.68
Connecticut	2	2.20
New York	2	2.15
Massachusetts	4	2.14
New York	4	2.13
Illinois	5	2.12
New Jersey	2	2.12
Indiana	1	2.12
New Jersey	1	2.12
Massachusetts	3	2.12
Rhode Island	All.	2.11
Wisconsin	3	2.11
Connecticut	1	2.10
Oregon	1	2.10
Pennsylvania	3	2.10
Louisiana	2	2.09
Massachusetts	1	2.09
Ohio	4	2.09
New Hampshire	1	2.09
Michigan	3	2.09
Texas	3	2.09
California	5	2.09
New York	6	2.08
Nevada	1	2.08
Ohio	1	2.08
Michigan	4	2.08
New York	1	2.08
Pennsylvania	7	2.08
Maryland	1	2.08
Missouri	4	2.07
New York	3	2.07
California	1	2.06
New York	7	2.06
Texas	5	2.05
Virginia	1	2.05
Massachusetts	2	2.04
Idaho	1	2.04
Illinois	4	2.03
Do	2	2.03
Do	1	2.02
Washington	1	2.02
New Jersey	3	2.02
Pennsylvania	1	2.02
California	4	2.02
Pennsylvania	2	2.02
Florida	2	2.02
Wisconsin	4	2.01
Indiana	2	2.01
Minnesota	4	2.01
New York	5	2.01
Do	8	2.00
Pennsylvania	4	2.00
Ohio	3	2.00
Indiana	3	2.00
New Hampshire	2	2.00
District of Columbia	All.	2.00
Kansas	2	1.99
Florida	3	1.99
Arizona	2	1.99
Texas	4	1.99
Maryland	3	1.99
Pennsylvania	6	1.98
Michigan	2	1.98
Minnesota	3	1.98
Ohio	2	1.98
Texas	1	1.98
Pennsylvania	5	1.98
Illinois	8	1.98
Do	7	1.98
Delaware	1	1.97
Wisconsin	2	1.97
California	3	1.97
Louisiana	1	1.97
Alabama	5	1.96
Michigan	1	1.96
Do	5	1.96
Washington	2	1.96
Florida	4	1.95
Maine	2	1.95
South Dakota	1	1.95
Oklahoma	2	1.95
Texas	2	1.95
Nebraska	2	1.95
Illinois	6	1.95
Arkansas	1	1.95
Illinois	3	1.94
Virginia	3	1.94
Alaska	All.	1.94
Minnesota	2	1.93
Iowa	1	1.93
Montana	1	1.93
Maine	3	1.93
Nebraska	1	1.93
Iowa	2	1.92
Kentucky	2	1.91
North Carolina	4	1.91
Arizona	1	1.91
North Dakota	1	1.91
Oregon	2	1.91
Georgia	2	1.91
Vermont	All.	1.90
Alabama	2	1.90
North Carolina	2	1.90
Missouri	1	1.90
Do	2	1.89
Virginia	2	1.89
Wisconsin	1	1.89
Wyoming	1	1.89
Colorado	6	1.89
Georgia	1	1.88
Colorado	4	1.88
Mississippi	1	1.88
North Dakota	2	1.88
Maryland	2	1.88
Utah	2	1.88
California	2	1.87
South Dakota	2	1.87
Oklahoma	1	1.87
Virginia	4	1.87
West Virginia	1	1.87
Louisiana	3	1.87
Maine	1	1.86
Minnesota	1	1.86
North Dakota	3	1.86
Colorado	3	1.86
Mississippi	2	1.86
South Carolina	2	1.85
Do	3	1.85
New Mexico	3	1.85
Tennessee	2	1.85
Do	3	1.85
North Carolina	6	1.85
Montana	2	1.85
North Carolina	5	1.84
Tennessee	1	1.84
Alabama	1	1.84
Do	4	1.84
New Mexico	1	1.84
Do	2	1.84
Colorado	5	1.83
Florida	1	1.83
South Carolina	1	1.83
Washington	3	1.83
North Carolina	1	1.82
Do	3	1.82
Utah	1	1.82
Alabama	3	1.80
Arkansas	2	1.80
Kentucky	1	1.80
Arkansas	3	1.78
Utah	3	1.77
Colorado	1	1.77
Missouri	3	1.76
Colorado	2	1.75
South Dakota	3	1.74

10. MEAN CHEST CIRCUMFERENCE BY GROUPS OF SECTIONS.

Certain additional points are revealed in Table 45, giving the chest circumference by groups of sections. Of all the groups, group 18 (the two Finnish sections) show the highest absolute chest girth, namely, 33.82, or 0.60 inch above the average for the United States. Next come the German and Scandinavian sections, followed by the sparsely settled sections with a large sprinkling of Orientals, the German and Austrian, the Russian, the agricultural sections of mixed foreign and native white, and then desert sections, including many large men, among them many tuberculous patients. Men of the mountain sections have a chest circumference only slightly above the average. The groups of commuter sections, mining, sparsely settled Mexican, eastern manufacturing, and mountain whites are close to the average. At the bottom of the list are the native whites of Scotch origin, whose chest circumference shows up very small, both absolutely and relatively. Next above these are the maritime sections, southern agricultural sections, with a prevalence of whites; French-Canadian sections and agricultural sections, with 45 per cent or more of Negroes. That the Negro agricultural sections of the South have a larger chest circumference than the white agricultural sections, despite the smaller average chest circumference in Negroes, is doubtless due to the fact that in the latter there is a larger proportion of towns and cities in which the chest circumference tends to become reduced. The low chest circumference of French-Canadian sections is due to the small stature of the population in these sections, though relatively the chest girth stands rather high.

Table 46 shows that the sections with 10 per cent Finns, among the most northern of the sections of the United States, have the largest relative chest girth, and that for all other groups it is less than half the stature. According to the table of Martin [5] (p. 279) the measure of chest girth of Europeans gives for most races an excess of half the stature, and one is led to inquire if there has been a relative disuse of the arms and chest for severe manual labor in the United States, possibly due to replacement of manual by machine labor.

Next in order come the sections containing 10 per cent or more of agricultural Russians with a relative chest girth of 49.8 per cent. Sections containing a large proportion of French Canadians have a relative chest girth of 49.7. All these sections are engaged primarily in agriculture. Then come the eastern manufacturing and commuter groups, in which the high relative chest circumference must be largely ascribed to racial stock. These are followed by a series of northern, chiefly agricultural, areas, containing Austrians, Scandinavians, and Germans in large proportions. At the end of the series come the Scotch sections, with a chest relative circumference of 48.4, a result which is largely due to the excessive stature of the men from these sections, which is not completely equalized by the increased chest circumference.

TABLE 45.—*Mean chest circumference (expiration) by groups of sections; groups arranged in order of standing with proportional chest circumference (expiration) in inches for each inch of height and each pound of weight; also the standard deviation for each chest circumference; first million draft recruits.*

[From Table VI, p. 440.]

Group No.	Description.	Number of men measured.	Mean chest.	Standard deviation (chest).	Mean chest. / Mean height.	Mean chest. / Mean weight.	Mean weight. / Mean chest.
				Inches.	*Inch.*	*Inch.*	*Pounds.*
	Average for the United States....	873,159	33.22	2.01	0.492	0.234	4.260
18	Finn, 10 per cent....................	5,855	33.82	1.99	.5016	.232	4.311
20	German and Scandinavian, over 10 per cent...............	28,056	33.72	1.95	.4951	.230	4.350
17	Scandinavian, 10 per cent............	50,953	33.65	1.95	.4952	.230	4.343
8	Sparsely settled, not more than 3 per square mile................	16,151	33.53	1.92	.4929	.232	4.320
21	German and Austrian, over 20 per cent	38,911	33.42	2.07	.4955	.233	4.287
16	Russian, 10 per cent plus............	12,064	33.39	2.01	.4976	.235	4.264
2	Agricultural, mixed, foreign native white....................	97,319	33.38	2.00	.4934	.234	4.277
9	Desert...............................	6,109	33.38	1.99	.4917	.235	4.256
22	German and Austrian, over 15 per cent	126,895	33.33	2.06	.4954	.234	4.271
11	Mountain............................	17,103	33.33	1.96	.4921	.233	4.290
6	Commuter............................	28,980	33.25	2.09	.4970	.238	4.205
7	Mining...............................	35,691	33.23	1.97	.4929	.234	4.282
14	Mexican, sparsely settled............	11,064	33.22	1.99	.4874	.234	4.283
5	Eastern manufacturing...............	81,598	33.20	2.08	.4970	.238	4.204
12	Mountain whites.....................	21,254	33.20	1.87	.4862	.237	4.225
4	Agricultural Negroes, 45 per cent plus.	49,465	33.19	1.91	.4894	.234	4.266
1	Agricultural, North, native white over 73 per cent..................	66,836	33.13	1.99	.4900	.234	4.270
13	Indian, sparsely settled............	10,038	33.13	1.89	.4864	.234	4.283
19	French-Canadian, 10 per cent.........	25,787	33.11	2.07	.4966	.240	4.164
3	Agricultural, native white, South....	117,890	33.09	1.91	.4854	.240	4.164
10	Maritime............................	6,157	33.00	2.04	.4903	.235	4.255
15	Native whites of Scotch origin........	13,473	32.95	1.90	.4844	.235	4.260

Next above come the agricultural areas of the South with a prevailingly white population. The mountain whites have also a relatively low chest circumference. The southern agricultural sections with 45 per cent Negroes have a mean relative chest circumference of 48.9, slightly in excess of that of the agricultural areas of the South predominantly white, because the southern white man is lanker than the southern Negro.

TABLE 46.—*Relative chest circumference, by groups of sections (chest circumference divided by stature), first million draft recruits.*[19]

Group.	Relative chest circumference.	Group.	Relative chest circumference.
Finns..	0.502	Mining..	0.493
Russians, 10 per cent.........................	.498	Desert..	.492
French-Canadians..............................	.497	Mountain......................................	.492
Commuters.....................................	.497	Northern agricultural, native white...........	.490
Eastern manufacturing.........................	.497	Maritime......................................	.490
Germans and Austrians, 20 per cent plus........	.496	Agricultural, Negro, 45 per cent plus.........	.489
Germans and Scandinavians, 10 per cent plus...	.495	Mexican, sparsely settled.....................	.487
Germans and Austrians, 15 per cent.............	.495	Mountain white................................	.486
Scandinavians, 10 per cent.....................	.495	Indian..	.486
Agricultural, mixed foreign and native white....	.493	Agricultural, southern whites.................	.485
Sparsely settled................................	.493	Native whites, Scotch origin..................	.484

The relation between the distribution of chest circumference at expiration for each of the principal groups of sections and that of the whole population of recruits is shown graphically in Plate X. The inspection of these curves shows that the groups containing 10 per cent or more of Finns have the greatest excess of chest girth. This is in accord with what we have already found regarding the robustness of the men of these sections.

Similarly the groups of sections characterized by having 10 per cent of Scandinavians are characterized by large chest girth and this is associated with what we have found in regard to the great stature and heavy build of men in this group of sections. Also the groups with 10 per cent or more of Russians are characterized by a slight excess of chest girth. On the other hand, the groups of sections containing a large proportion of men of Scotch origin are characterized by a deficiency of chest girth. This agrees with what we have already found concerning the lankness of form of the men of this group.

The graphs show, moreover, that the chest circumference of sections comprising half, or more, Negroes are on the average larger than those sections of the South containing a smaller proportion of Negroes. The sections containing 10 per cent or more of French Canadians are characterized by a deficiency of chest circumference.

TABLE 47.—*Distribution of chest circumference (expiration) shown by groups of sections, first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Group No.	Description.	Number measured.	Chest, in inches.										
			29	30	31	32	33	34	35	36	37	38	39
1	Agricultural, North, native white over 73 per cent	66,795	1,451	3,944	8,483	12,715	13,752	11,371	7,455	4,025	1,870	842	887
2	Foreign and native white	97,338	1,693	4,696	10,247	16,749	19,807	17,829	12,632	7,363	3,541	1,576	1,205
3	Agricultural, native white, South	117,890	2,421	6,776	14,684	22,478	25,217	21,006	13,163	6,924	2,884	1,324	1,013
4	Agricultural, Negroes, 45 per cent plus	49,447	853	2,591	5,673	9,162	10,378	9,227	5,917	3,287	1,381	638	340
5	Eastern manufacturing	81,569	2,047	5,018	10,234	14,920	15,799	13,552	9,209	5,438	2,725	1,371	1,256
6	Commuter	28,994	737	1,771	3,542	5,072	5,594	4,839	3,425	2,059	1,026	493	436
7	Mining	35,686	731	1,835	4,089	6,404	7,221	6,452	4,395	2,522	1,136	504	397
8	Sparsely settled, not more than 3 per square mile	16,143	157	606	1,456	2,704	3,348	3,228	2,325	1,316	579	249	175
9	Desert	6,110	99	265	644	1,097	1,279	1,098	784	449	221	94	80
10	Maritime	6,157	214	395	797	1,186	1,270	984	607	394	176	62	72
11	Mountain	17,101	259	800	1,849	3,060	3,541	3,234	2,127	1,251	575	226	179
12	Mountain whites	21,233	328	1,001	2,388	4,082	4,661	3,926	2,571	1,353	546	215	162
13	Indian, sparsely settled	10,035	178	468	1,260	1,979	2,144	1,829	1,151	616	201	129	80
14	Mexican, sparsely settled	11,064	221	586	1,271	2,029	2,373	1,911	1,327	718	347	159	122
15	Native whites of Scotch origin	13,469	303	826	1,855	2,811	2,904	2,213	1,315	730	270	129	113
16	Russian, 10 per cent plus	12,057	228	527	1,305	2,075	2,390	2,215	1,570	973	421	205	148
17	Scandinavian, 10 per cent	50,951	501	1,699	4,286	7,987	10,296	10,221	7,548	4,544	2,258	984	627
18	Finn, 10 per cent	5,855	49	163	421	915	1,145	1,123	869	614	322	149	85
19	French Canadian, 10 per cent	25,772	645	1,597	3,340	5,016	5,065	4,189	2,786	1,605	753	395	381
20	German and Scandinavian, 10 per cent and over	28,051	241	829	2,240	4,220	5,666	5,752	4,305	2,551	1,313	563	371
21	German and Austrian, over 20 per cent	38,943	723	1,934	4,147	6,582	7,662	7,112	4,924	3,026	1,499	703	631
22	German and Austrian, over 10 per cent	126,887	2,639	6,839	14,168	21,909	24,971	22,624	15,871	9,377	4,616	2,147	1,726
	Total	867,547	16,718	45,166	98,379	155,152	176,483	155,935	106,276	61,135	28,660	13,157	10,486

TABLE 47.—*Distribution of chest circumference (expiration) shown by groups of sections, first million draft recruits*—Continued.

SECTION B: RATIOS PER 1,000.

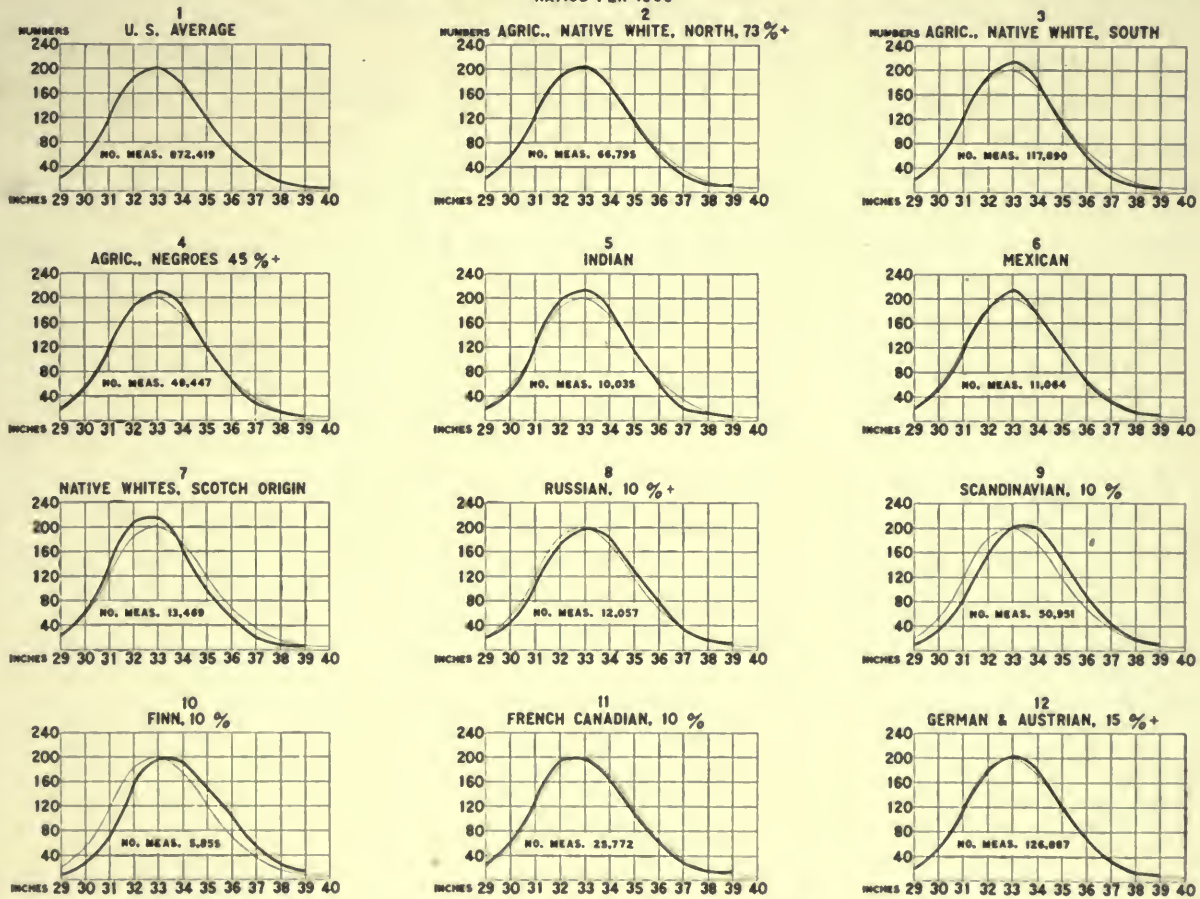
Group No.	Description.	Number measured.	Chest, in inches.											Total.
			29	30	31	32	33	34	35	36	37	38	39	
1	Agricultural, North, native white over 73 per cent	66,795	21.72	59.05	127.00	190.36	205.88	170.24	111.61	60.26	28.00	12.61	13.28	1,000
2	Foreign and native white	97,338	17.39	48.24	105.27	172.07	203.49	183.17	129.77	75.64	36.38	16.19	12.38	1,000
3	Agricultural, native white, South	117,890	20.54	57.48	124.56	190.67	213.90	178.18	111.65	58.73	24.46	11.23	8.59	1,000
4	Agricultural, Negroes, 45 per cent plus	49,447	17.25	52.40	114.73	185.29	209.88	186.60	119.66	66.48	27.93	12.90	6.88	1,000
5	Eastern manufacturing	81,569	25.10	61.52	125.46	182.91	193.69	166.14	112.90	66.67	33.41	16.81	15.40	1,000
6	Commuter	28,994	25.42	61.08	122.16	174.93	192.94	166.90	118.13	71.01	35.39	17.00	15.04	1,000
7	Mining	35,686	20.48	51.42	114.58	179.45	202.35	180.80	123.16	70.67	31.83	14.12	11.12	1,000
8	Sparsely settled, not more than 3 per square mile	16,143	9.73	37.54	90.19	167.50	207.40	199.96	144.03	81.52	35.87	15.42	10.84	1,000
9	Desert	6,110	16.20	43.37	105.40	179.54	209.33	179.71	128.31	73.49	36.17	15.38	13.09	1,000
10	Maritime	6,157	34.76	64.15	129.45	192.63	206.27	159.82	98.59	63.99	28.59	10.07	11.69	1,000
11	Mountain	17,101	15.15	46.78	108.12	178.94	207.06	189.11	124.38	73.15	33.62	13.22	10.47	1,000
12	Mountain whites	21,233	15.45	47.14	112.47	192.25	219.52	184.90	121.09	63.72	25.71	10.13	7.63	1,000
13	Indian, sparsely settled	10,035	17.74	46.64	125.56	197.21	213.65	182.26	114.70	61.39	20.03	12.86	7.97	1,000
14	Mexican, sparsely settled	11,064	19.97	52.96	114.88	183.39	214.48	172.72	119.94	64.90	31.36	14.37	11.03	1,000
15	Native whites of Scotch origin	13,469	22.50	61.33	137.72	208.70	215.61	164.30	97.63	54.20	20.05	9.58	8.39	1,000
16	Russian, 10 per cent plus	12,057	18 91	43.71	108.24	172.10	198.23	183.71	130.21	80.70	34.92	17.00	12.28	1,000
17	Scandinavian, 10 per cent	50,951	9.83	33.35	84.12	156.76	202.08	200.60	148.14	89.18	44.32	19.31	12.31	1,000
18	Finn 10 per cent	5,855	8.37	27.84	71.90	156.28	195.56	191.80	148.42	104.87	55.00	25.45	14.52	1,000
19	French Canadian, 10 per cent	25,772	25.03	61.97	129.60	194.63	196.53	162.54	108.10	62.28	29.22	15.33	14.78	1,000
20	German and Scandinavian, 10 per cent and over	28,051	8.59	29.55	79.85	150.44	201.99	205.06	153.47	90.94	46.81	20.07	13.23	1,000
21	German and Austrian 20 per cent and over	38,943	18.57	49.66	106.49	169.02	196.75	182.63	126.44	77.70	38.49	18.05	16.20	1,000
22	German and Austrian over 10 per cent	126,887	20.80	53.90	111.66	172.67	196.80	178.30	125.08	73.90	36.38	16.92	13.60	1,000
	Total	867,547	19.27	52.06	113.40	178.84	203.43	179.74	122.50	70.47	33.04	15.17	12.09	1,000

11. MEAN CHEST CIRCUMFERENCE OF THE EIGHT EUROPEAN RACES OF MEN AT DEMOBILIZATION.

Table 49 gives the absolute and proportional frequencies of the different classes of chest circumference for men of the eight European races as taken at demobilization. These are summarized in Table 48. The second column of Table 48 gives the average chest circumference at rest. The greatest average chest circumference, 90.42, is found among the Poles, the next among the Germans, followed by Italians and Irish. The smallest chest circumference, 87.53, is found among the Hebrews; markedly above stand the English, followed by the French and Scotch. Our measurements correspond rather closely with Gould's. We may, therefore, compare his measurements (after reduction to centimeters) on page 280 "after expiration" with those of the present work. Thus, for the measurements in 1866 of the English, Gould gets 87.12 centimeters, about 1 centimeter less than the English troops measured half a century later. Gould's figures are: Chest circumference of the Scotch, 88.06, as contrasted with 88.57, 50 years later; of men from Ireland, 89.28, as contrasted with 88.67, which shows a reduction of 0.5 centimeter; of the French, etc., 87.12, as contrasted with our figure of 88.49, showing a marked increase; of the Germans 88.19, as contrasted with our average of 89.52, showing a marked increase. In general, excepting the Irish, the mean chest circumference for our races is greater than for those of Gould. This is largely due to the fact that in Gould's measurements, the circumference of the chest was taken at full inspiration, whereas in the present series it was taken of the chest at rest.

CHEST (EXP.) DISTRIBUTION BY GROUPS OF SECTIONS (P_1)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U.S.

PLATE X.

The middle column of Table 48 gives the standard deviation or index of variability for the chest circumference of the eight races. From this column it appears that the Irish are the most variable in respect to chest circumference, which may be due to the combination in that rubric of tall Scotch-Irish and the more thickset Celtic-Irish. Next in order come the Scotch, then the Hebrews and Germans. The lowest index of variability, 4.94, is found among the Italians, followed by the English, French, and Polish.

The second column from the right shows the proportion of chest circumference to total stature for each of the races. From this column it appears that in relation to stature the Italians have the largest chest circumference, followed by the Poles, French, and Hebrews. The English have the smallest relative chest circumference, 51.24, followed by the Scotch, Irish, and Germans. Thus it appears that the Mediterranean races, Poles, and Hebrews are relatively larger chested than the Nordics. Since chest circumference is not very closely correlated with stature, this difference in relative chest circumference is largely dependent upon the varying size of the divisors (stature) used in finding the quotients. Rather more to the point would be the relation of chest circumference to weight of the body and these quotients have been calculated and are given in the last column to the right of Table 48. According to the last column we find the greatest chest in relation to weight among the Italians, 0.644; next largest among the Hebrews and then the French and Polish. The smallest relation of chest to weight is found among the Germans, 0.604, next larger English, 0.608; Scotch, 0.611; and Irish, 0.620. This result runs somewhat parallel to the preceding column and justifies the general conclusion that whether in relation to the stature or in relation to weight the Mediterranean races and the Hebrews have a larger relative chest girth than the Nordic races.

TABLE 48.—*Absolute and relative chest circumference (rest) of eight European races, with standard deviation and the coefficient of variation for each, demobilization, 1919.*

Race.	Number measured.	Absolute chest circumference.	Standard deviation.	Coefficient of variation.	Relative chest circumference to stature.	Relative chest circumference to weight.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*	*Per cent.*
English	4,205	88.18	5.00	5.670	51.24	0.608
Scotch	2,067	88.57	5.25	5.928	51.33	0.611
Irish	6,142	88.67	5.31	5.989	51.74	0.620
German	7,070	89.52	5.17	5.774	52.03	0.604
French	1,460	88.49	5.08	5.741	52.49	0.623
Italian	3,524	88.87	4.94	5.558	53.80	0.644
Polish	2,409	90.42	5.11	5.651	53.37	0.621
Hebrew	1,691	87.53	5.19	5.929	52.44	0.635

TABLE 49.—*Comparative frequency distribution of chest circumference (rest) in each of eight races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Chest circumference, in centimeters.																										
		63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80	81-82	83-84	85-86	87-88	89-90	91-92	93-94	95-96	97-98	99-100	101-102	103-104	105-106	107-108	109-110	111-112	113-114	115-116
English	4,205	.....	.....	3	.....	1	7	14	44	125	266	506	624	755	621	471	338	192	111	73	33	11	3	4	2	.....	1	.....
Scotch	2,067	.....	1	.....	1	.....	5	9	28	56	128	202	283	382	277	264	183	92	80	44	13	9	5	2	2	1	.....	.....
Irish	6,142	2	.....	.....	3	4	8	18	41	178	374	686	877	978	937	724	518	325	212	128	57	29	18	12	7	3	3	.....
German	7,070	2	.....	1	.....	5	4	17	49	133	310	612	829	1,118	1,142	990	719	497	329	159	76	39	25	5	4	3	1	1
French	1,460	.....	.....	.....	3	2	2	2	11	36	90	149	237	252	213	158	128	87	44	26	12	3	.....	3	2	.....	.....	.....
Italian	3,524	1	1	2	.....	3	6	11	23	78	171	333	463	584	602	493	316	211	124	58	22	9	7	2	1	3	.....	.....
Polish	2,409	3	.....	2	3	.....	1	6	7	30	66	146	237	333	379	399	322	215	133	79	25	9	8	1	3	2	.....	.....
Hebrew	1,691	.....	.....	.....	1	.....	3	4	39	70	137	209	295	284	240	143	114	60	43	20	12	9	4	2	1	1	.....	.....
Number measured	28,568	8	2	8	11	15	36	81	242	706	1,542	2,843	3,845	4,686	4,411	3,642	2,638	1,679	1,076	587	250	118	70	31	22	13	5	1
Not measured	102	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	28,670	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Chest circumference, in centimeters.																											Total.
		63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80	81-82	83-84	85-86	87-88	89-90	91-92	93-94	95-96	97-98	99-100	101-102	103-104	105-106	107-108	109-110	111-112	113-114	115-116	
English	4,205	.....	.....	0.71	.....	0.24	1.66	3.33	10.46	29.73	63.26	120.33	148.40	179.54	147.67	112.01	80.38	45.66	26.40	17.36	7.85	2.62	0.71	0.95	0.48	.....	0.24	.....	1,000
Scotch	2,067	0.48	0.48	.....	0.48	.....	2.42	4.35	13.55	27.09	61.92	97.72	136.91	184.81	134.01	127.73	88.53	44.51	38.71	21.29	6.29	4.35	2.42	.97	.97	0.48	.....	.....	1,000
Irish	6,142	.33	.....	.....	.49	.65	1.30	2.93	6.68	28.98	60.89	111.69	142.79	159.23	152.57	117.88	84.34	52.92	34.52	20.84	9.28	4.72	2.93	1.95	1.14	.49	.49	.....	1,000
German	7,070	.28	.....	.14	.....	.71	.57	2.40	6.93	18.81	43.85	86.56	117.25	158.12	161.52	140.02	101.70	70.30	46.53	22.49	10.75	5.52	3.54	.71	.57	.42	.14	.14	1,000
French	1,460	.....	.....	.....	2.05	1.37	1.37	1.37	7.53	24.66	61.64	102.06	162.33	172.60	145.89	108.22	87.67	59.59	30.14	17.81	8.22	2.05	.....	2.05	1.37	.....	.....	.....	1,000
Italian	3,524	.28	.28	.57	.....	.85	1.70	3.12	6.53	22.13	48.53	94.50	131.39	165.71	170.82	139.90	89.67	59.88	35.19	16.46	6.24	2.55	1.99	.57	.28	.85	.....	.....	1,000
Polish	2,409	1.25	.....	.83	1.25	.....	.42	2.49	2.91	12.45	27.40	60.61	98.38	138.23	157.32	165.62	133.66	89.25	55.21	32.79	10.38	3.74	3.32	.42	1.25	.83	.....	.....	1,000
Hebrew	1,691	.....	.....	.....	.59	.....	1.77	2.37	23.06	41.40	81.02	123.60	174.46	167.94	141.93	84.57	67.42	35.48	25.43	11.83	7.10	5.32	2.37	1.18	.59	.59	.....	.....	1,000
Number measured	28,568	.28	.07	.28	.39	.53	1.26	2.84	8.47	24.71	53.98	99.52	134.58	164.02	154.40	127.49	92.34	58.77	37.67	20.55	8.75	4.13	2.45	1.09	.77	.46	.18	.04	1,000
Not measured	102	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	28,670	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

12. CHEST CIRCUMFERENCE OF MEN OF THE COLOR RACES.

The following table, derived from Tables 103 and 104, gives the means of comparing the two principal color races measured at demobilization. It will be recalled that no distinction of color races was made in the original schedules for recording measurements of drafted men.

TABLE 50.—*Mean and relative chest circumference (rest), white and Negro troops, demobilization, 1919.*

Race.	Number measured.	Mean in centimeters.	Relative chest circumference.
White	95,867	88.79	51.6
Colored (Negro)	6,355	87.99	51.2

The table indicates that the chest circumference of the white troops exceeds that of the Negro troops by 8 millimeters. In relation to height the chest circumference of the Negro troops is slightly less than that of the white troops.

TABLE 51.—*Various heights, weights, and chest circumferences (expiration) shown for the United States, with ratio per 1,000 of each, first million draft recruits.*

[Height and chest in inches; and weight in pounds.]

Height to weight (Table I).						Height to chest (Table II).						Weight to chest (Table III).					
Height.	Number of men measured.	Ratio per 1,000.	Weight.	Number of men measured.	Ratio per 1,000.	Height.	Number of men measured.	Ratio per 1,000.	Chest.	Number of men measured.	Ratio per 1,000.	Weight.	Number of men measured.	Ratio per 1,000.	Chest.	Number of men measured.	Ratio per 1,000.
58 and under			92			58 and under			28 and under			92	213	2.24	28 and under		
59	3,124	3.60	97	184	0.21	59	3,086	3.53	29	18,093	20.74	97	2,313	2.65	29	17,933	20.56
60	2,887	3.32	102	2,356	2.71	60	2,921	3.35	30	49,090	56.22	102	7,391	8.47	30	49,056	56.23
61	7,477	8.61	107	7,435	8.56	61	7,572	8.67	31	103,294	118.30	107	21,382	24.51	31	103,277	118.38
62	15,644	18.01	112	21,388	24.63	62	15,848	18.15	32	159,379	182.54	112	41,665	47.76	32	159,456	182.77
63	30,935	35.62	117	41,503	47.79	63	31,207	35.74	33	175,858	201.42	117	63,866	73.21	33	175,770	201.47
64	52,547	60.51	122	63,567	73.20	64	52,923	60.61	34	152,663	174.85	122	85,072	97.51	34	152,555	174.86
65	81,904	94.31	127	84,726	97.56	65	82,426	94.40	35	103,414	118.42	127	100,715	115.44	35	103,381	118.50
66	109,964	126.62	132	100,084	115.24	66	110,816	126.92	36	59,015	67.60	132	107,129	122.80	36	58,867	67.48
67	127,844	147.21	137	106,889	123.08	67	128,291	146.92	37	28,175	32.27	137	101,040	115.82	37	28,121	32.23
68	129,987	149.68	142	100,607	115.85	68	130,624	149.60	38	13,151	15.06	142	88,316	101.23	38	13,065	14.98
69	110,508	127.25	147	88,057	101.40	69	111,123	127.38	39	11,027	12.63	147	72,618	83.24	39	5,828	6.68
70	83,702	96.38	152	72,362	83.32	70	83,880	96.07	40 and over			152	53,688	61.54	40 and over	5,110	5.86
71	54,357	62.59	157	53,431	61.53	71	54,609	62.55				157	39,998	45.85			
72	31,370	36.12	162	39,797	45.82	72	31,523	36.10				162	29,141	33.40			
73	15,198	17.50	167	29,063	33.47	73	15,284	17.50				167	19,052	21.84			
74	6,391	7.36	172	18,954	21.83	74	6,411	7.34				172	12,692	14.55			
75	2,620	3.02	177	12,629	14.54	75	2,620	3.00				177	8,310	9.53			
76	1,071	1.23	182	8,385	9.66	76	1,080	1.24				182	5,566	6.38			
77	360	.41	187	5,467	6.30	77	361	.41				187	3,853	4.42			
78	259	.30	192	3,907	4.50	78	256	.29				192	2,967	3.40			
79	296	.34	197	2,966	3.42	79	298	.34				197	5,432	6.23			
80 and over			202	4,688	5.40	80 and over						202					
Total	868,445	1,000.00		868,445	1,000.00		873,159	1,000.00		873,159	1,000.00		872,419	1,000.00		872,419	1,000.00

TABLE 52.—*Height and weight classes—Mean weight and the standard deviation for each height; also mean height and the standard deviation for each weight; derived from summation of sections (Table I); first million Draft Recruits.*

Height.	Number of men measured.	Mean weight.	Standard deviation.	Weight.	Number of men measured.	Mean height.	Standard deviation.
Inches.		*Pounds.*	*Pounds.*	*Pounds.*		*Inches.*	*Inches.*
59	3, 124	135. 98	18. 95	97	184	62. 38	2. 03
60	2, 887	128. 11	20. 30	102	2, 356	63. 92	2. 80
61	7, 477	124. 80	19. 29	107	7, 435	64. 02	2. 34
62	15, 644	125. 24	17. 66	112	21, 388	64. 51	2. 20
63	30, 935	127. 49	16. 46	117	41, 503	65. 16	2. 17
64	52, 547	130. 24	15. 41	122	63, 567	65. 79	2. 20
65	81, 904	133. 11	14. 87	127	84, 726	66. 34	2. 23
66	109, 964	136. 24	14. 72	132	100, 084	66. 86	2. 26
67	127, 844	139. 46	15. 18	137	106, 889	67. 33	2. 28
68	129, 987	142. 82	16. 13	142	100, 607	67. 80	2. 33
69	110, 508	146. 25	17. 63	147	88, 057	68. 17	2. 35
70	83, 702	149. 49	19. 28	152	72, 362	68. 56	2. 41
71	54, 357	153. 26	21. 55	157	53, 431	68. 88	2. 46
72	31, 370	156. 64	23. 84	162	39, 797	69. 15	2. 50
73	15, 198	160. 40	26. 52	167	29, 063	69. 32	2. 62
74	6, 391	163. 90	29. 14	172	18, 954	69. 57	2. 83
75	2, 620	166. 85	31. 66	177	12, 629	69. 66	2. 68
76	1, 071	167. 30	32. 48	182	8, 385	69. 76	2. 76
77	360	166. 05	33. 41	187	5, 467	69. 70	2. 73
78	259	161. 89	31. 08	192	3, 907	69. 65	2. 82
79 and over	296	158. 05	30. 58	197	2, 966	69. 38	3. 20
				202 and over	4, 688	70. 16	2. 78
Total	868, 445				868, 445		

Mean height: 67.49 inches; standard deviation, 2.71 inches.
Mean weight: 141.54 pounds; standard deviation, 17.42 pounds.

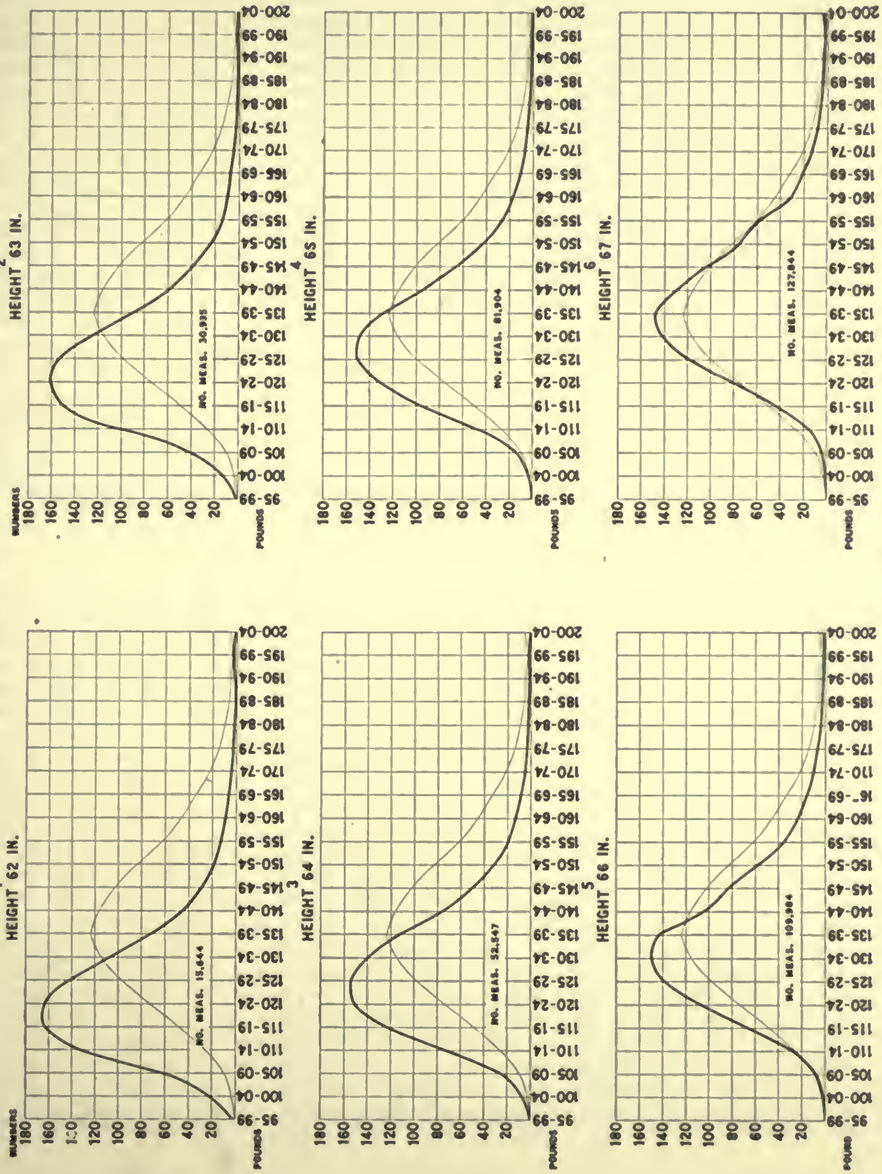
TABLE 53.—*Height and chest circumference (expiration) classes—Mean chest circumference (expiration) and the standard deviation for each height; also the standard deviation for each chest circumference; derived from summation of sections (Table II); first million Draft Recruits.*

Height.	Number of men measured.	Mean chest.	Standard deviation.	Chest.	Number of men measured.	Mean height.	Standard deviation.
Inches.		*Inches.*	*Inches.*	*Inches.*		*Inches.*	*Inches.*
59	3, 086	32. 94	2. 08	29	18, 093	65. 91	2. 55
60	2, 921	32. 49	2. 01	30	49, 090	66. 29	2. 54
61	7, 572	32. 28	1. 93	31	103, 294	66. 71	2. 56
62	15, 848	32. 33	1. 91	32	159, 379	67. 12	2. 60
63	31, 207	32. 46	1. 93	33	175, 858	67. 51	2. 63
64	52, 923	32. 59	1. 95	34	152, 663	67. 85	2. 66
65	82, 426	32. 77	1. 96	35	103, 414	68. 11	2. 70
66	110, 816	32. 92	1. 98	36	59, 015	68. 36	2. 73
67	128, 291	33. 10	1. 96	37	28, 175	68. 47	2. 76
68	130, 624	33. 29	1. 96	38	13, 151	68. 51	2. 75
69	111, 123	33. 49	1. 96	39 and over	11, 027	68. 59	2. 76
70	83, 880	33. 68	1. 95				
71	54, 609	33. 86	1. 95				
72	31, 523	34. 06	1. 96				
73	15, 284	34. 28	1. 93				
74	6, 411	34. 46	1. 94				
75	2, 620	34. 65	1. 96				
76	1, 080	34. 57	1. 98				
77	361	34. 60	2. 00				
78	256	34. 48	1. 98				
79 and over	298	34. 30	2. 21				
Total	873, 591				873, 591		

Height: Mean, 67.49 inches; standard deviation, 2.72 inches.
Chest circumference (expiration): Mean, 33.22 inches; standard deviation, 2.01 inches.

WEIGHT DISTRIBUTION BY HEIGHT (P_1)

RATIOS PER 1000

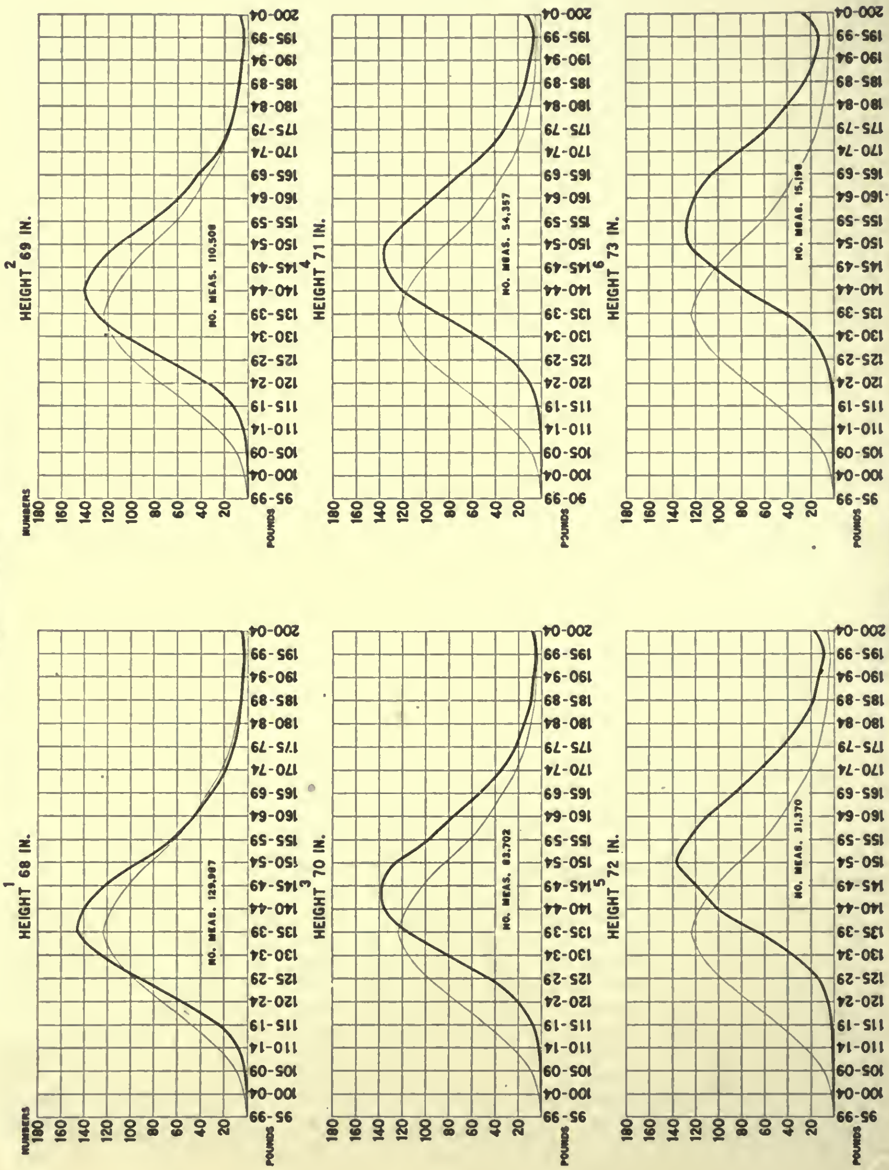


FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XI.

WEIGHT DISTRIBUTION BY HEIGHT (P_1)

RATIOS PER 1000

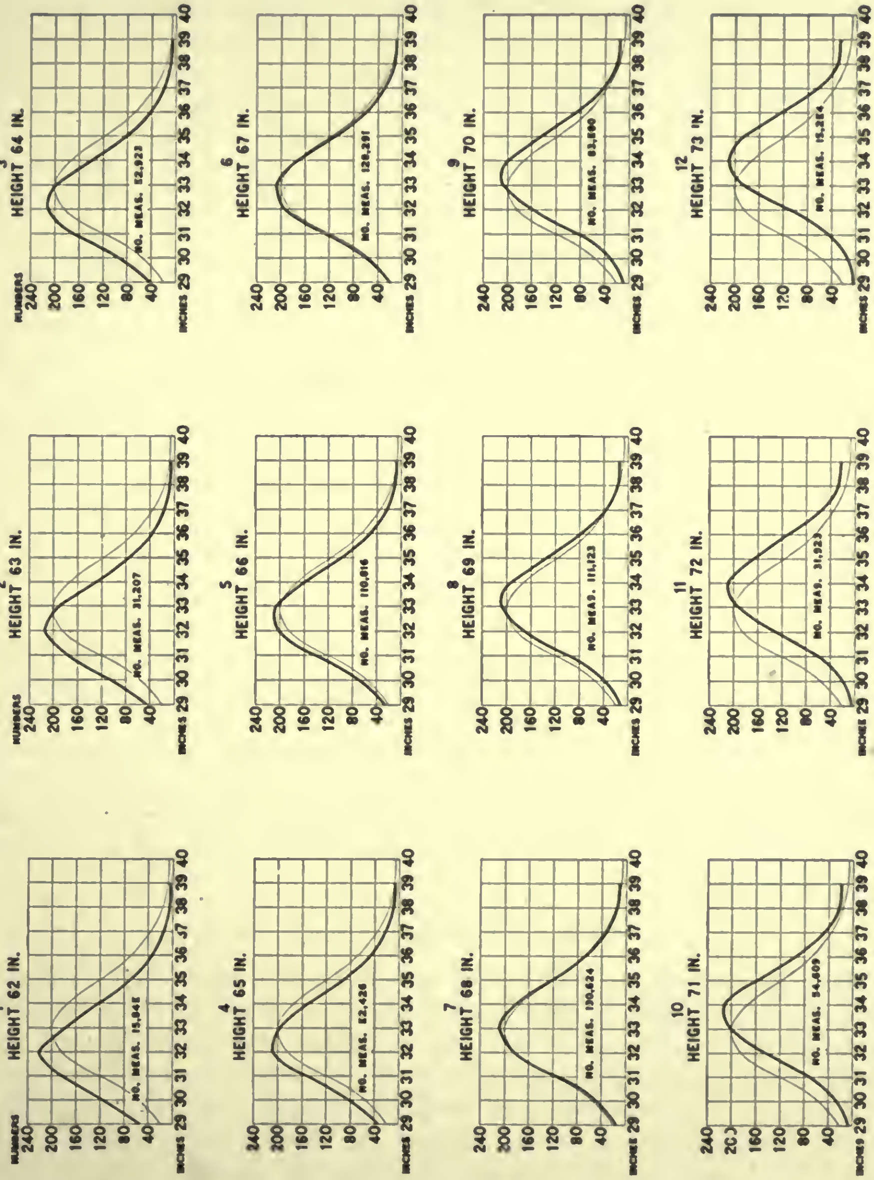


FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XII.

CHEST (EXP.) DISTRIBUTION BY HEIGHT (P_1)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U.S.

PLATE XIII.

TABLE 54.—*Weight and chest circumference (expiration) classes.—Mean chest circumference (expiration) and the standard deviation for each weight; also the mean weight and the standard deviation for each chest circumference; derived from summation of sections (Table III); first million draft recruits.*[19]

Weight.	Number of men measured.	Mean chest.	Standard deviation.	Chest.	Number of men measured.	Mean weight.	Standard deviation.
Pounds.		*Inches.*	*Inches.*	*Inches.*		*Pounds.*	*Pounds.*
97	213	29.61	1.15	29	17,933	119.53	12.92
102	2,313	30.59	2.14	30	49,056	123.64	10.98
107	7,391	30.56	1.71	31	103,277	128.56	10.97
112	21,382	30.82	1.47	32	159,456	134.02	11.29
117	41,665	31.20	1.43	33	175,770	139.66	11.89
122	63,866	31.64	1.40	34	152,555	145.64	12.58
127	85,072	32.05	1.40	35	103,381	151.69	13.37
132	100,715	32.47	1.40	36	58,867	158.33	14.48
137	107,129	32.88	1.41	37	28,121	165.53	16.09
142	101,040	33.28	1.43	38	13,065	172.95	17.85
147	88,316	33.69	1.44	39	5,828	178.10	21.89
152	72,618	34.08	1.46	40 and over	5,110	185.48	24.32
157	53,688	34.46	1.48	....	....	....	....
162	39,998	34.85	1.52	....	....	....	....
167	29,141	35.17	1.60	....	....	....	....
172	19,052	35.61	1.63	....	....	....	....
177	12,692	36.00	1.71	....	....	....	....
182	8,310	36.44	1.68	....	....	....	....
187	5,566	36.82	1.79	....	....	....	....
192	3,853	37.14	1.91	....	....	....	....
197	2,967	37.14	2.49	....	....	....	....
202 and over	5,432	38.70	1.63	....	....	....	....
	872,419	....	....	....	872,419	....	....

Weight: Mean, 141.59 pounds; standard deviation, 17.49 pounds.
Chest circumference (expiration): Mean, 33.23 inches; standard deviation, 2.03 inches.

V. BUILD.

It is clear that the absolute weight and chest circumference are relatively unimportant in giving an idea of the build of man, unless we know something about his stature. It is customary, therefore, to consider not only these absolute measurements, but also these measurements in relation to stature. Weight considered in relation to stature gives us an index of build. A formula which will combine in proper fashion the weight, stature, and chest circumference will give us an index of robustness. The latter will be considered in another section.

1. IMPORTANCE OF THE INDEX OF BUILD.

Important as stature and weight are for military and medico-military purposes, they are hardly as important as the index of build, which tells us something about the physical constitution of a man, and, by implication and as a result of experience, also something about his ability to withstand the stress of warfare. The relativeness of weight to height has been long recognized in the Army, where the tables indicate the limitations of weight for men of respective height. Such is shown in Table 138. In fact, it is not too much to say that the principal reason for taking weight in connection with height is to secure a numerical statement of the build as a first means of deciding upon the acceptance or rejection of the recruit for military service.

2. METHOD OF DETERMINING.

The best method of expressing the index of build is not easily determined. The simplest method and that used by Army, Life Insurance examiners, etc., is that of dividing the weight by the stature, recognizing that in tall (large) persons the absolute increment per inch is greater than in short (small) persons. This method would be without objection if the body of men were cylinders of equal diameter but of varying height. In such a case the index would be constant, since the differences in weight would correspond to the differences in stature. It is clear, however, that the form of the body departs somewhat from this assumption.

If the body were a cube or sphere then body weight would vary as the cube of any one of the diameters, and the index of build would be most properly given by dividing the weight by the cube of any one of the diameters; but the body does not fulfill these conditions. Finally, it has been pointed out that inasmuch as the form of the body lies between the two hypothetical conditions just mentioned a more suitable index of build would be obtained by dividing the weight by the second power of the stature. Such a method was indeed discussed by Gould [a] and it was shown by him to meet very satisfactorily the requirements of the index of build.

To decide between the foregoing methods of measuring the index of build, comparative tables have been made, Tables 55 and 56, giving the result of applying the three formulæ. That series must be regarded as the most satisfactory which gives a fairly constant quotient when applied to figures from different parts of the general correlation table of stature and weight on page 417. By comparing columns 3, 4, and 5, which give respectively the index obtained by the three methods described, it is to be noted that column 4 (weight in pounds $\times$ 1,000 $\div$ by the square of the height) is the most constant, but that the index falls somewhat from the short stature of 61 inches to the tall stature of 74 inches. There is indeed some reason to believe that the weight of short men does not diminish pro rata with the stature and, therefore, this decrease in the size of the index obtained in column 4 agrees with the apparent facts. Column 3 tells a different story from column 4. It shows how sections of the body an inch thick weigh absolutely more in tall men than in short ones. The ratio of column 5 is of the same order as that of column 4, but shows a still more marked decrease in build, passing from 61 to 74 inches. The matter of choice between these three methods has been fully discussed elsewhere. Here may be given only the conclusion that in accordance with the findings of Gould and, before him, Quetelet, the ratio of weight divided by the second power of the height seems to be the most satisfactory index of build, and is one which we shall largely use in this section.

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[a] Subject first elaborated by Quetelet in 1835. See Baxter,[1] Vol. 1, p. 52.

TABLE 55.—*Index of build calculated by three methods (based on Table 1, first million draft recruits.*

MODAL WEIGHT.

Height.	Modal weight.	Weight in pounds (×10). / Height in inches.	Weight (× 1,000). / Height (sq.).	Weight (× 100,000). / Height (cubed).
Inches.	*Pounds.*			
61	117	19.18	31.44	51.55
62	117	18.87	30.44	49.09
63	122	19.37	30.74	48.79
64	127	19.84	31.01	48.45
65	127	19.54	30.06	46.24
66	132	20.00	30.30	45.91
67	137	20.45	30.52	45.55
68	137	20.15	29.63	43.57
69	142	20.58	29.83	43.23
70	147	21.00	30.00	42.86
71	152	21.41	30.15	42.47
72	152	21.11	29.32	40.72
73	157	21.51	29.46	40.36
74	157	21.22	28.67	38.74

TABLE 56.—*Index of build calculated by three methods (based on Table 1, first million draft recruits).*

AVERAGE WEIGHT.

Height.	Average weight.	Weight in pounds (×10). / Height in inches.	Weight (× 1,000). / Height (sq.).	Weight (× 100,000). / Height (cubed).
Inches.	*Pounds.*			
61	135.98	22.29	36.54	59.91
62	128.11	20.66	33.33	53.76
63	124.80	19.81	31.44	49.91
64	125.24	19.57	30.58	47.77
65	127.49	19.61	30.17	46.42
66	130.24	19.74	29.90	45.31
67	133.11	19.87	29.65	44.26
68	136.24	20.04	29.46	43.33
69	139.46	20.21	29.29	42.45
70	142.82	20.40	29.15	41.64
71	146.25	20.60	29.01	40.86
72	149.49	20.76	28.84	40.05
73	153.26	20.99	28.76	39.40
74	156.64	21.17	28.61	38.66

3. INDEX OF BUILD FOR MEAN STATURE AND WEIGHT.

If we divide the mean weight (×1,000) of the whole population by the square of the mean height, we shall obtain by probably the most accurate method an average index of build of the whole population. The following brief table gives the average index of build thus obtained:

Recruits, World War	31.08
Men at demobilization, 1919	31.59
Earlier series of Gould (pp. 284–3)	31.47
Later series, Gould (p. 403)	31.35

4. THE INDEX OF BUILD OF CIVIL AND WORLD WAR VETERANS FOR EACH INCH OF STATURE.

Table 57 gives the index of build of veterans of the World War and Civil War. It appears that while men 70 inches tall or less were more robust in 1919, those from 71 to 75 inches were less robust in 1919 than in 1865. This is largely because the later figures contain many Southerners of slender build, who were absent from the earlier Civil War series. In the figures for the

World War veterans, the Negro troops are included. However, as the number of them was small they probably affect the average but slightly.

TABLE 57.—*Index of build of Civil War veterans*[a] *(white troops) and World War veterans*[b] *(white and Negro troops).*

Stature classes.	Civil War.		World War.	
	Weight.	Weight (×1,000). / Height (sq.).	Weight.	Weight (×1,000). / Height (sq.).
	Pounds.		*Pounds.*	
60	111.79	31.05	123.00	34.17
61	117.60	31.60	125.66	33.77
62	120.77	31.42	127.10	33.06
63	122.95	30.98	129.78	32.69
64	128.43	31.35	131.84	32.19
65	132.12	31.27	135.20	32.00
66	136.06	31.24	139.26	31.97
67	140.77	31.36	142.71	31.79
68	144.92	31.34	145.52	31.47
69	149.04	31.30	149.39	31.38
70	153.19	31.26	153.30	31.29
71	158.21	31.38	156.91	31.13
72	162.48	31.34	159.84	30.83
73	166.39	31.22	164.03	30.78
74	168.99	30.86	163.54	29.87
75	170.39	30.29	168.00	29.87

[a] Calculated from Gould, p. 408, Table IX. [b] Calculated from Table No. LXXIV.

5. DISTRIBUTION OF INDEX OF BUILD, BY STATES.

Table 58 gives the distribution of the index of build at mobilization by States. In this table there are four columns. The first two give the index of build (mean weight divided by the square of the mean stature of recruits) and the last two columns give for the successive States another index of build obtained by dividing the mean weight by the first power of the mean stature. By squaring the stature, differences in stature are exaggerated and consequently the range of the first two columns seems more significant and the order of the States is, therefore, more important in this case. Of all States and Territories, Alaska stands first in robustness of its drafted men. This is followed by North Dakota, South Dakota, Montana, Minnesota, Wisconsin, Nevada, and Oregon. The men of the Northwest are tall men, but they are relatively so heavy that there is in those States a high index of build. In other words, they are large men. However, in the case of Wisconsin the high index of build is partly due to the relatively short stature (although above the average) of its drafted men. Examining now the bottom of the table, we find that, using the second power of stature as the divisor, the drafted men from Tennessee and Kentucky lie at the very bottom of the list. Men from these States have practically the same mean weight, but the men from Tennessee are taller. Accordingly, their index of build is much less than that of men from Kentucky. Indeed, they are the least robust of those of any State. The low rank of these States is due especially to mountain sections, although the men of Tennessee seem to be of the tall, slender type throughout the State. Next in order comes Colorado with an index of build of 30.37. The men from this State are not only tall but they are below the average in weight, a condition which is probably associated with the immigration of tuberculous patients to that State.

By any method of calculating build, the Southern States tend to lie toward the bottom of the list. Thus in column 1, Arkansas, Texas, Georgia, North Carolina, Florida, Virginia, Alabama, Louisiana, South Carolina, and Mississippi occupy relatively low positions. This low position is due both to the great stature of the men of these States and also to their relatively low mean weight. On account of the prevalence of malaria in these Southern States, as well as hookworm in many of them, it seems probable that the low index of build is due in part to the combination of these parasitic diseases. In addition, the low position of New Mexico is doubtless to be ascribed to the large amount of tuberculosis in the population. The low index of build of the men of Oklahoma is due to their great stature combined with only an average weight.

In the second list of States in Table 58, calculated by using as divisor the first power of the weight, the same general statement made above concerning the build of men from various parts of the country holds, though the order of the States is somewhat shifted.

TABLE 58.—*Index of build at mobilization, by States, 1917–1918.*

State.	Weight × 1,000. / (Height (sq.)	State.	Weight. / Height.
United States	31.07	United States	2.097
Alaska	32.41	Alaska	2.208
North Dakota	31.85	North Dakota	2.163
South Dakota	31.73	South Dakota	2.159
Montana	31.64	Montana	2.151
Minnesota	31.63	Oregon	2.150
Wisconsin	31.62	Minnesota	2.150
Nevada	31.59	Nevada	2.143
Oregon	31.57	Washington	2.140
Washington	31.48	Wisconsin	2.137
Wyoming	31.47	Idaho	2.133
California	31.44	Wyoming	2.130
Connecticut	31.42	Nebraska	2.126
Michigan	31.41	Iowa	2.126
Pennsylvania	31.38	California	2.127
New York	31.34	Michigan	2.110
Idaho	31.33	Utah	2.109
New Hampshire	31.29	Kansas	2.107
Iowa	31.26	Illinois	2.103
Nebraska	31.22	Mississippi	2.100
Illinois	31.21	Maine	2.100
Maryland	31.20	Arizona	2.099
Vermont	31.16	Ohio	2.098
Maine	31.15	New Hampshire	2.095
Ohio	31.14	Connecticut	2.095
New Jersey	31.14	Pennsylvania	2.094
Utah	31.09	Vermont	2.091
Massachusetts	31.05	New York	2.091
Rhode Island	30.95	Indiana	2.090
Kansas	30.90	Maryland	2.090
Delaware	30.89	West Virginia	2.085
Indiana	30.86	Oklahoma	2.084
Arizona	30.81	Missouri	2.081
West Virginia	30.73	Texas	2.079
District of Columbia	30.72	New Jersey	2.079
Mississippi	30.72	Alabama	2.077
South Carolina	30.70	District of Columbia	2.077
Missouri	30.63	South Carolina	2.077
Louisiana	30.55	North Carolina	2.076
Alabama	30.55	Delaware	2.075
Virginia	30.53	Arkansas	2.071
Oklahoma	30.53	Georgia	2.071
Florida	30.51	Virginia	2.070
North Carolina	30.47	Massachusetts	2.070
Georgia	30.46	Colorado	2.069
Texas	30.40	Louisiana	2.065
New Mexico	30.39	Florida	2.061
Arkansas	30.37	Rhode Island	2.060
Colorado	30.37	Kentucky	2.058
Kentucky	30.26	Tennessee	2.052
Tennessee	30.06	New Mexico	2.051

TABLE 59.—*Index of build at demobilization, by States, 1919.*

State.	Weight × 1,000. / Stature (sq.).	State.	Weight. / Stature.
Alaska	33.60	Alaska	2,333
North Dakota	32.67	South Dakota	2.225
South Dakota	32.54	North Dakota	2.220
Minnesota	32.44	Minnesota	2.216
Nevada	32.42	Idaho	2.212
Idaho	32.40	Montana	2,211
Montana	32.34	Nebraska	2.210
Nebraska	32.29	Nevada	2.201
Iowa	32.19	Iowa	2.198
Wisconsin	32.18	Kansas	2.194
Utah	32.10	Utah	2.189
Kansas	32.06	Wisconsin	2.181
Michigan	32.01	Wyoming	2.178
Wyoming	31.95	Arizona	2.171
Louisiana	31.79	Washington	2.170
Illinois	31.77	Oklahoma	2.169
Arizona	31.77	Oregon	2.169
Colorado	31.75	Colorado	2.163
Washington	31.73	Louisiana	2.158
Pennsylvania	31.73	Michigan	2.155
Oregon	31.72	Mississippi	2.150
Ohio	31.72	West Virginia	2.150
Oklahoma	31.70	Illinois	2.150
Maine	31.69	Texas	2.148
Rhode Island	31.66	Virginia	2.147
Vermont	31.61	Arkansas	2.146
Virginia	31.58	North Carolina	2.143
Indiana	31.56	Missouri	2.143
Missouri	31.53	Ohio	2.141
West Virginia	31.52	California	2.140
California	31.52	Indiana	2.138
Delaware	31.44	Maine	2.128
North Carolina	31.41	Pennsylvania	2.126
Maryland	31.40	Vermont	2.123
Arkansas	31.37	New Mexico	2.123
New York	31.36	Tennessee	2.121
Massachusetts	31.35	South Carolina	2.121
Connecticut	31.34	Kentucky	2.121
Mississippi	31.34	Delaware	2.114
Texas	31.31	Alabama	2.112
New Jersey	31.31	Maryland	2.110
New Mexico	31.30	Rhode Island	2.107
Kentucky	31.13	Connecticut	2.103
South Carolina	31.04	Georgia	2.101
Tennessee	30.92	New York	2.098
District of Columbia	30.81	New Jersey	2.096
Alabama	30.79	Massachusetts	2.093
New Hampshire	30.69	District of Columbia	2.083
Georgia	30.66	Florida	2.074
Florida	30.40	New Hampshire	2.050

TABLE 60.—*Increase in index of build at demobilization, 1919, over mobilization, 1917–18.*

State.	Weight × 1,000. / Height (sq.).	Per cent of increase or decrease.	State.	Weight. / Height.	Per cent of increase or decrease.
United States	0.51	1.6	United States	0.043	....
Colorado	1.38	4.3	Alaska	.125	5.7
Louisiana	1.24	3.9	Colorado	.094	4.5
Alaska	1.19	3.5	Louisiana	.093	4.5
Oklahoma	1.17	3.7	Kansas	.087	4.1
Kansas	1.16	3.6	Oklahoma	.085	4.1
Idaho	1.07	3.3	Nebraska	.084	3.9
Nebraska	1.07	3.3	Utah	.080	3.7
Virginia	1.05	3.3	Idaho	.079	3.7
Utah	1.01	3.2	Virginia	.077	3.7
Arkansas	1.00	3.2	Arkansas	.075	3.6
Arizona	.96	3.0	New Mexico	.072	3.5
North Carolina	.94	3.0	Iowa	.072	3.4
Iowa	.93	2.9	Arizona	.072	3.4
Texas	.91	2.9	Tennessee	.069	3.3
New Mexico	.91	2.9	Texas	.069	3.3
Missouri	.90	2.9	North Carolina	.067	3.2
Kentucky	.87	2.8	Minnesota	.066	3.1
Tennessee	.86	2.8	South Dakota	.066	3.1
Nevada	.83	2.6	West Virginia	.065	3.1
North Dakota	.82	2.5	Kentucky	.063	3.1
South Dakota	.81	2.5	Missouri	.062	2.9
Minnesota	.81	2.5	Montana	.060	2.8
West Virginia	.79	2.6	Nevada	.058	2.7
Rhode Island	.71	2.2	North Dakota	.057	2.6
Montana	.70	2.2	Mississippi	.050	2.3
Indiana	.70	2.2	Indiana	.048	2.2
Mississippi	.62	2.0	Wyoming	.048	2.2
Michigan	.60	1.9	Rhode Island	.047	2.2
Ohio	.58	1.8	Illinois	.047	2.2
Illinois	.56	1.8	Michigan	.045	2.1
Wisconsin	.56	1.7	Wisconsin	.044	2.1
Delaware	.55	1.7	South Carolina	.044	2.1
Maine	.54	1.7	Ohio	.043	2.0
Wyoming	.48	1.5	Delaware	.039	1.8
Vermont	.45	1.4	Alabama	.035	1.6
Pennsylvania	.35	1.1	Pennsylvania	.032	1.5
South Carolina	.34	1.1	Vermont	.032	1.5
Massachusetts	.30	.9	Washington	.030	1.0
Washington	.25	.8	Georgia	.030	1.0
Alabama	.24	.8	Maine	.028	1.3
Georgia	.20	.7	Massachusetts	.023	1.1
Maryland	.20	.6	Maryland	.020	1.0
New Jersey	.17	.5	Oregon	.019	.9
Oregon	.15	.5	New Jersey	.017	.8
District of Columbia	.09	.3	California	.013	.6
California	.08	.3	Florida	.013	.6
New York	.02	.6	Connecticut	.008	.4
Connecticut	−.08	−.3	New York	.007	.3
Florida	−.11	−.3	District of Columbia	.006	.3
New Hampshire	−.60	−1.9	New Hampshire	−.045	−2.1

6. COMPARISON OF INDEX OF BUILD IN RECRUITS OF 1917–1918 AND IN VETERANS OF 1919 AND 1864–1865.

Table 59 gives the index of build at demobilization by States. Here, as in Table 58, Alaska and the Dakotas stand at the top. But the other States following them differ a good deal from the mobilization series. Kentucky and Tennessee no longer stand at the bottom, but Florida and Georgia do, though even these States show an increase in robustness.

Table 60 shows the percentage of increase of the index of build of demobilization over mobilization. For the United States as a whole the increase in the index of build amounted to 0.51, or about 1.6 per cent. In the table the State that stands at the top is Colorado, with an increase of 1.38, or 4.3 per cent. Since Colorado men were among the least robust of the recruits, there was the greatest room for improvement. It was suggested that their average lack of robustness on entering the Army was due to the presence of a large number of persons of tuberculous strains. If so, Army life and exercise in the open air produced a vast improvement in robustness. The increase may have been due to a general improvement or to the selective weeding out of men who were accepted for the Army and subsequently discharged for disability on account of tuberculosis. The second State from the top is Louisiana, in which the recruits also stand relatively low in index of build, 30.55. They had, therefore, a great opportunity for improvement in this respect. Men from Louisiana show the greatest increase in weight of all of the United States proper, while the increase in stature was only medium. This high position of Louisiana in order of increase in index of build is thus due to the increase in average weight of men at demobilization, which is probably due to improved sanitary conditions, whether on the part of white or colored.

The next state in order is Alaska, which showed the greatest increase in weight and also the greatest increase in height. The number of men involved, however, is small. Next follow the States of Oklahoma, Kansas, Idaho, and Nebraska. The Southern States in which the increase in index of build is over 0.75 are Virginia, 1.05; Arkansas, 1; North Carolina, 0.94; Texas, 0.91; Kentucky, 0.87; Tennessee, 0.86; West Virginia, 0.79. In a number of Southern States, however, the increase in index of build of the troops was very slight, as in South Carolina, 0.34; Alabama, 0.24; Georgia, 0.20; Florida, −0.11.

Among the States that lie at the bottom of the list are New Hampshire, with a decrease of 0.60 in the index of build. This agrees with what we have found in respect to the marked decrease in weight and stature in men from this State, a result that probably is due to selection and to the small numbers considered, It is noteworthy that men from Florida on the average showed a decrease in the index of build. The numbers are not large, only 140 men, and these may have been in some way selected, such as being exclusively white or colored troops or from an organization drawn from some particular part of the State.

Next comes Connecticut, which shows practically no change in robustness between mobilization and demobilization, namely −0.08. In this case the numbers are fairly large and the fact suggests that men from this State who are of less than average stature and already above the average in robustness on mobilization had little opportunity to change in this respect. The same remarks may throw light on the low position of New York and the District of Columbia. The lower half of the table includes many of the manufacturing States of the East, such as New Jersey, Maryland, Massachusetts, and Pennsylvania. Rhode Island, which gave a median position in the index of robustness of recruits, retains that position at demobilization.

It will be of interest to compare the index of build by groups of States of veterans of 1865 and 1919. Tables 61 and 62 give the means for such a comparison. By either method of calculating the index of build it appears that the build of veterans is greater in the eastern sections in 1919 than it was in 1865, but less in some western sections.

TABLE 61.—*Comparison of index of build of men at demobilization in 1865 and 1919 (weight divided by first power of height).*

Demobilization, 1919.		Demobilization, 1864–1866 (Gould [3] p. 405).	
States.	Index of build.	States.	Index of build.
Rhode Island	2.107	New England	2.082
Connecticut	2.103		
Massachusetts	2.093		
Vermont	2.123		
New Hampshire	2.050		
Maine	2.128		
New York	2.098		2.107
New Jersey	2.096		
Pennsylvania	2.126		
Ohio	2.111		2.153
Indiana	2.138		
Michigan	2.155		2.106
Wisconsin	2.181		
Illinois	2.150		
Kentucky	2.121		2.190
Tennessee	2.121		

TABLE 62.—*Comparison of index of build of men at demobilization in 1865 and 1919 (weight multiplied by 1,000, divided by square of height).*

Demobilization, 1919.		Demobilization, 1864–65.		
		Gould's later series (pp. 284, 403).	Gould's earlier series (pp. 284, 402).	
States.	Index of build.	Index of build.	States.	Index of build.
Rhode Island	31.66	30.87	New England	31.54
Connecticut	31.34			
Massachusetts	31.35			
Vermont	31.61			
New Hampshire	30.69			
Maine	31.69			
New York	31.36	31.24	New York	32.12
New Jersey	31.31		New Jersey	31.77
Pennsylvania	31.73		Pennsylvania	
Ohio	31.72	31.68	Ohio and other western States	32.12
Indiana	31.56			
Michigan	32.01	31.34		
Wisconsin	32.18			
Illinois	31.77			
Kentucky	31.13	31.91		
Tennessee	30.92			

7. INDEX OF BUILD BY SECTIONS.

Table 63 gives the index of build of the 156 sections into which the country has been divided, arranged in order of size, the highest index being at the top of the list. This index is obtained by dividing the mean weight × 1,000 of the men in each section by the square of their mean stature. The range is from 32.41 for men from Alaska to 29.88 for men from the hill country of Arkansas, inhabited chiefly by native whites. Considering the table in more detail, we find that of the United States proper, Michigan 1, with a large Scandinavian and Finnish populaton (only 12 per cent native whites) stands at the top with an index of 32.15. The position, at the head, of men of Alaska and of a Finnish and Scandinavian section, indicates that people living in the north or derived from northern countries tend to have excessive weight in relation to their height. Thus among the European peoples the Scandinavians are characterized in Table 28, by a weight of 66 kilos, the greatest weight given in the table.

Returning to Table 63, we find next in order California 1. This comprises the agricultural area of central California, whose population is about half whites of native parentage and about 5 per cent Indian, Chinese, and Japanese. The well-known robustness of form of the Orientals may have influenced the result.

Next in order come North Dakota 3, including a large proportion of agricultural Russians and Scandinavians, and Minnesota 3, chiefly Scandinavians and Finns. These are followed by Arizona 1, in which Indians are the prevailing element of the population. It is well known that Indians have an exceptionally robust form; their average body weight being greater than that of any other peoples, according to Martin's table [5] (p. 238), which gives (from Gould [2]) the average weight of the Iroquois Indian as 73.8 kilos.

Next in order come South Dakota 3 (Indian) and 2 (characterized again by agricultural Russians, Scandinavians, and Germans). Next are North Dakota 1 with 24 per cent Scandinavians in its population and California 2, a mining area of the middle Sierras, with a population consisting of men selected for their robustness and their ability to withstand rigors of life among the gold diggers. The following sections comprise parts of the States of Minnesota, Wisconsin, North Dakota, South Dakota, Montana, and Oregon, all sections characterized by a high proportion of Scandinavians. This part of the table includes also San Francisco with its 5 per cent of orientals, and Buffalo, N. Y., and vicinity, where have settled many of the lumber and lake men and their descendants. This table brings out vividly the striking robustness of the population of our Northwest.

The sections at the bottom of the table present a great contrast not only in index of build but in geographical and racial elements. At the bottom lies Arkansas 2, a rural hill country with 97 per cent native whites of native parentage. Next comes the mountain region of Tennessee; then, following closely, is the agricultural region of the same State. Next comes a mountainous area of North Carolina. Next comes Illinois 6, including the Negro colony that occupies the territory at the junction of the Ohio and Mississippi Rivers. This population is very tall but decidedly underweight, possibly due to the malaria of the river bottoms. Next come the mountain whites of Kentucky, then the Key West section of Florida, with its mixture of Spanish and West Indian blood, next the mountain whites of Virginia, and next New Mexico 3, a desert region containing many tuberculous whites of native stock and about 14 per cent Mexicans. Next in order come the mountain region of South Carolina, the mountain region of Alabama, and the hill country of Arkansas with 94 per cent native white population. The other sections lying in the lower part of the table are of Missouri, Mississippi, North Carolina, Florida, Georgia, Texas, Kentucky, and Virginia, all of which occupy a low position in the table of the States. Of interest is the low index of robustness of Colorado 6 (30.46). This is the region south of Denver and no doubt contains a considerable tuberculous population.

Other points of interest will be revealed by a comparison of sections from different parts of the table. For example, New York 2, including the most densely populated part of the Western Hemisphere, falls in the upper half of the table with an index of build of 31.36. This high position is in part determined by the small height and stockiness of the population, which comprises a large proportion of south Italians, Greeks, and Polish Jews. Illinois 5, Chicago, with an index of 31.30, lies somewhat below New York, because of the high proportion of men of tall stature, descendants of the pioneers of the West. Pennsylvania 1 (Philadelphia) lies at about the middle of the table, with an index of 31.01. This is due to the lower mean weight of the population of Philadelphia as compared with New York, though the average stature is slightly greater. Again, Massachusetts 4, including Boston, is intermediate between New York and Philadelphia, with a rate of 31.15. Colorado 5, comprising Denver, the section with perhaps the largest number of rejects for tuberculosis, lies near the middle of the list, with an index of 31.01. The cities of Minneapolis and St. Paul (Minnesota 4) have an index of robustness of 31.34, almost exactly equal that of New York City. The average stature is much greater, but the average weight has increased in proportion.

TABLE 63.—*Index of build of recruits, by sections, 1917–1918* $\left(\frac{\textit{Weight} \times 1{,}000}{\textit{Stature (sq.)}}\right)$.

State.	Section.	Index.	State.	Section.	Index.	State.	Section.	Index.
Alaska		32.41	New York	3	31.29	Ohio	3	30.78
Michigan	1	32.15	Do	4	31.38	West Virginia	2	30.76
North Dakota	3	32.01	Wisconsin	1	31.26	Arizona	2	30.76
Minnesota	3	31.99	Ohio	4	31.23	New Mexico	1	30.75
South Dakota	3	31.94	Nebraska	1	31.20	Indiana	3	30.73
Do	2	31.91	New York	8	31.18	Louisiana	2	30.72
North Dakota	1	31.91	Pennsylvania	6	31.15	Florida	4	30.69
California	2	31.83	New Jersey	3	31.15	Texas	4	30.68
Minnesota	2	31.79	Massachusetts	4	31.15	Colorado	4	30.67
Wisconsin	4	31.78	Vermont	All.	31.15	North Carolina	6	30.66
California	5	31.77	New Jersey	1	31.15	South Carolina	3	30.64
New York	6	31.76	Ohio	2	31.14	Tennessee	1	30.64
North Dakota	2	31.75	Illinois	8	31.14	Missouri	2	30.64
Pennsylvania	5	31.74	New Hampshire	2	31.13	Colorado	3	30.63
South Dakota	1	31.68	Indiana	2	31.13	Arkansas	1	30.62
Montana	1	31.67	Maryland	3	31.11	Louisiana	1	30.62
Minnesota	1	31.65	New Jersey	2	31.11	Georgia	2	30.59
Oregon	1	31.63	New York	7	31.11	Florida	2	30.58
Michigan	4	31.63	Kansas	1	31.07	Colorado	1	30.58
Pennsylvania	3	31.63	Utah	2	31.06	Oklahoma	2	30.58
Do	4	31.59	Maine	3	31.06	Missouri	1	30.56
Montana	2	31.59	Michigan	2	31.05	Texas	1	30.51
Nevada	All.	31.59	Virginia	1	31.05	Alabama	1	30.48
California	1	31.55	Mississippi	1	31.04	Oklahoma	1	30.48
Washington	2	31.53	Alabama	4	31.04	Alabama	5	30.48
Wisconsin	2	31.51	California	3	31.03	Colorado	6	30.46
Ohio	1	31.49	Pennsylvania	1	31.01	West Virginia	1	30.45
Illinois	1	31.49	Utah	1	31.01	Louisiana	3	30.40
Wyoming	All.	31.47	California	4	31.01	North Carolina	3	30.40
Washington	1	31.46	Colorado	5	31.01	New Mexico	2	30.39
Indiana	1	31.44	Massachusetts	2	31.01	Virginia	3	30.34
Utah	3	31.43	Do	1	31.00	Georgia	1	30.33
Connecticut	1	31.42	Michigan	5	30.99	Kentucky	2	30.33
Iowa	1	31.42	Massachusetts	3	30.99	Texas	2	30.33
Connecticut	2	31.42	Iowa	2	30.99	Georgia	1	30.32
Oregon	2	31.41	Arizona	1	30.97	Florida	1	30.30
Washington	3	31.41	South Carolina	2	30.97	North Carolina	2	30.28
Pennsylvania	2	31.40	Rhode Island	All.	30.95	Mississippi	2	30.28
Do	7	31.39	North Carolina	4	30.94	Missouri	3	30.25
New York	1	31.38	Maine	2	30.94	Arkansas	3	30.25
Maine	1	31.37	Delaware	All.	30.89	Alabama	3	30.24
New York	2	31.36	New York	5	30.89	South Carolina	1	30.20
Minnnesota	4	31.34	Kansas	2	30.88	New Mexico	3	30.16
Wisconsin	3	31.33	Alabama	2	30.88	Virginia	4	30.16
Idaho	All.	31.33	Colorado	2	30.87	Florida	3	30.16
New Hampshire	1	31.32	Texas	5	30.87	Kentucky	1	30.07
Maryland	1	31.31	Illinois	3	30.86	Illinois	6	29.98
Nebraska	2	31.31	Maryland	2	30.85	North Carolina	1	29.94
Illinois	4	31.31	Illinois	7	30.84	Tennessee	2	29.91
Michigan	3	31.31	North Carolina	5	30.83	Do	3	29.90
Illinois	5	31.30	Missouri	4	30.83	Arkansas	2	29.88
Do	2	31.29	Texas	3	30.81			

8. INDEX OF BUILD BY GROUPS OF SECTIONS.

Table 64 gives the index of build for the groups of sections arranged in diminishing order of the index, the largest at the top of the table. From this table it appears that the sections containing 10 per cent or more Finns include the most robust population of the United States. It must be remembered, however, that these sections contain a large proportion of Scandinavians and that they are among the northernmost sections of the United States. The index for this group is only slightly less than that of the Alaskan section. Next come two groups of sections containing a large proportion of Germans and Scandinavians. This is followed by the group containing sections with 10 per cent or more of agricultural Russians (31.59). Then follow two groups characterized by 20 per cent and 15 per cent, respectively, Germans and Austrians. Next comes the sparsely settled group containing a considerable sprinkling of Orientals, who are known to be robust. This is followed by the eastern manufacturing and the commuter groups containing a large proportion of short, stocky people.

At the bottom of the list stand the mountain whites, with an index of 30.07. Just above is the group of native white of Scotch origin. Then come the southern agricultural groups, including a large proportion of native white population. The sections including a large proportion of Negroes stand decidedly above this group. The sparsely settled section containing Indians, that containing Mexicans, and the desert group lie in the lower half of the list, the index of build being depressed, no doubt, by the resort to these regions of the southwest by many tuberculous persons.

TABLE 64.—*Index of build by groups of sections, 1917–18* $\left(\frac{Weight \times 1,000}{Height\ (sq.)}\right)$.

Groups.	Index of build.	Groups.	Index of build.
Finns, 10 per cent	32.06	Mountain	31.17
Scandinavians, 10 per cent	31.64	French Canadians	31.02
Germans and Scandinavians, 10 per cent plus	31.61	Maritime	30.98
Russians, 10 per cent plus	31.59	Agricultural, native white, North	30.92
Germans and Austrians, 20 per cent plus	31.53	Desert	30.85
Germans and Austrians, 15 per cent plus	31.45	Agricultural, Negro	30.78
Sparsely settled	31.32	Mexican, sparsely settled	30.59
Eastern manufacturing area	31.29	Indian, sparsely settled	30.58
Commuters	31.27	Southern agricultural, native white	30.42
Agricultural, mixed foreign and white	31.23	Native white, Scotch origin	30.33
Mining	31.23	Mountain whites	30.07

9. THE MEAN INDEX OF BUILD OF EIGHT EUROPEAN RACES OF MEN AT DEMOBILIZATION.

Table 65 gives the index of build of representatives of eight European races as recorded at demobilization. According to this table, the Poles were the most robust people, 32.73. Following them in turn are the Italians, Germans, French, Hebrews, English, Scotch, and Irish. This series indicates that the Mediterranean peoples are more robust than the Nordics. In fact, this difference of build constitutes a striking racial feature.

TABLE 65.—*Index of build of eight European races* $\left(\frac{Weight \times 1,000}{Height\ (sq.)}\right)$.

Race.	Index of build.	Race.	Index of build.
English	31.59	French	32.28
Scotch	31.41	Italian	32.63
Irish	31.41	Polish	32.73
German	32.31	Hebrew	31.93

10. THE MEAN INDEX OF BUILD OF COLOR RACES.

Finally the index of build has been calculated for white, Negro-mulatto, Chinese, Japanese, and Indian. In order we have:

TABLE 66.—*Index of build of color races* $\left(\frac{Weight \times 1{,}000}{Height\ (sq.)}\right)$.

Race.	Index of build.	Race.	Index of build.
Indian	32.93	Japanese	32.00
Chinese	32.82	White	31.56
Negro-mulatto	32.63		

Here, again, a striking likeness appears between the Indian and Chinese. The Japanese resemble, in build, more the whites than the Chinese.

11. EXPLANATION OF PLATES XIV-XIX.

An attempt is made in Plate XIV to show the interrelation of stature, weight, and chest circumference (expiration) in the general population of the first million draft recruits. In the left figure the stature is taken as the controlling factor, the range being from 79 down to 59 inches. The mean stature, 67.49 inches, for the first million draft recruits is shown by the upper heavy horizontal line. Passing downward, the second horizontal line shows the quotient of the average weight in pounds divided by the average stature in inches, which is 2.097 pounds. The corresponding quotient for each class of statures is shown by the vertical divided bars. It is apparent that for the statures from 75 down to 62 inches, the corresponding average weights diminish with the statures closely. However, for the statures 79 to 76 inches, there is a very marked diminution in the proportional weight, for the men with such tall statures are unduly slender. On the other hand, for statures of 61 to 59 inches there is a marked increase in the proportional weight, which is more marked as the stature diminishes. This increase is probably due at least in part to the fact that the local boards sent to the camps only men of such short stature as were unusually robust.

In the third of the horizontal lines, there is shown the quotient of the average chest circumference (expiration) by the average stature in inches. For each stature the corresponding proportional average chest circumference (expiration) is shown by the vertical heavy bars. It is apparent at once that the proportional average chest circumference (expiration) increases as the stature decreases. This increase is due at least in part to the fact that the range of the stature measurements is from 79 to 59 inches, or a total of 21 inches, whereas that of the chest circumference (expiration) is from only 39 to 29 inches, or a total of 11 inches; thus the range of the chest measurements is about 50 per cent of that of the stature measurements, and consequently the quotient of the chest circumference (expiration) divided by the stature increases as the stature decreases. The small chested short men were rejected. The proportional increase of the chest circumference (expiration) to the height is also due in part to the racial increase of robustness of the men of short stature.

In figure 2 which is drawn up in similar manner as figure 1, the weight is taken as the controlling factor with the quotient of the weight divided by the height, and the weight divided by the chest circumference (expiration) shown in the second and third sections below. One sees in a general way the decrease in both parallels the decrease in the weight, but that the quotient of the weight divided by the chest circumference (expiration) follows the downward trend of the weight more closely than does the quotient of the weight divided by the height.

In figure 3 the chest circumference (expiration) is taken as the controlling factor with the quotient of the chest circumference (expiration) divided by the stature, and the weight divided by the chest circumference (expiration) shown in the second and third sections below. It is seen here again that the decrease in both sets of proportional figures parallels fairly closely the downward trend of the chest circumference (expiration), but that the quotient of the weight divided by the chest circumference (expiration) more closely approximates it than that of the chest circumference divided by the stature. In other words, as shown elsewhere, the weight and chest circumference (expiration) are more closely correlated measurements than are the stature and chest circumference (expiration) or stature and weight.

Plate XV is drawn up in a similar manner to Plate XIV, figure 1. There is shown here the interrelation of stature, weight, and chest circumference (expiration) for the men included in the first million draft recruits, distributed by the various States from which they were drafted. It is seen at once that from a number of the States the stature is above the average, but that for many of them the proportional weight and chest circumference (expiration) are below the average. Thus the men from Texas have the greatest average stature, but their proportional weight and chest circumference (expiration) is considerably below the average of the recruits in general. On the other hand, the men from Idaho, South Dakota, Minnesota, and North Dakota not only have great stature, but have also high proportional weight and chest circumference (expiration). The highest proportional weight is found in the men from North Dakota, the lowest proportional chest circumference (expiration) in the men from the District of Columbia, and the highest proportional chest circumference (expiration) in men from Connecticut. The high proportional chest circumference (expiration) in the men from Connecticut, who were much below the average in stature, is due to the fact, as shown in connection with Plate XIV, figure 1, page 177, that the proportion of chest circumference (expiration) to stature increases, as the stature decreases. The lowest average stature is found in men from Rhode Island, next in the men from Connecticut, and then in those from Pennsylvania and New York.

In Plate XVI, as in Plate XIV, figure 2, the weight is taken as the controlling factor. One sees at once that the highest average weights are found in some of the States of the Northwest—South Dakota, North Dakota, Minnesota, Oregon, Montana, and Washington. These States have also high proportional weights to the stature and proportional weights to the chest circumference (expiration). At the extreme left stand Rhode Island and Massachusetts with their large percentage of southern European immigrants. Not only is the average for these two States below the average, but the proportional weight to the height, and the weight to the chest circumference (expiration) are also below the average.

In Plate XVII, as in Plate XIV, figure 3, the chest circumference (expiration) is taken as the controlling factor. Here, as in Plate XIII, it is some of the States of the Northwest that stand at the extreme right—namely, North Dakota, Nevada, Idaho, Minnesota, Wisconsin, and South Dakota. These States also have higher proportional chest circumference (expiration) to stature, and weight to chest circumference (expiration). The high average of stature, weight, and chest circumference (expiration) of the men from the States of the north central and northwest sections as well as the variations in these measurements found in the men from the other States is, as has been shown elsewhere, the result of racial factors more than of environmental ones.

In Plate XVIII there is shown the interrelation of stature, weight, and chest circumference (expiration) associated with the occupational, physiographic, and population groups of sections. This plate is drawn up in a similar manner to Plate XIV. For figure 1, where the stature is taken as the controlling factor, certain interesting facts are apparent. It is seen at a glance that certain of the "groups" have a stature above the average for the first million draft recruits. However, the proportional weight and chest circumference (expiration) for these "groups" with great statures varies above and below the average. Thus it is seen that the "group" of the mountain whites of the Appalachian Mountains has the greatest stature of all, but that it has a low proportional weight and chest circumference (expiration). The same is also true, though not so markedly so, for the "group" of agricultural native whites of the South. On the contrary, it is apparent that for the German and Scandinavian "groups," while the stature is above the average, their proportional weight and chest circumference (expiration) are likewise so. The "group" composed of the native whites of Scotch origin has a stature greater than the average, with a low proportional weight and a very low proportional chest circumference (expiration). The "group" of Finns, for which people the stature is below the average, has the greatest proportional chest and weight. The lowest average stature is found among the commuters, eastern manufacfacturing, and French-Canadian "groups." The first two named have average proportional weights, with proportional chest above the average. For the French-Canadians the proportional chest circumference (expiration) is also above the average, but the proportional weight is below it. This high proportional chest circumference (expiration) for these latter three "groups" is due at least in part to the fact that the proportion of the chest circumference (expiration) to the stature increases as the stature decreases (see Plate XIV, fig. 1, p. 177).

In figure 2 the weight is taken as the controlling factor, with the quotient of the weight divided by the stature and the weight divided by the chest circumference (expiration) shown in the second and third sections below. The points that were apparent in figure 1 are further strengthened by the evidence here. Thus the German-Scandinavian, Scandinavian, and Finn "groups" have the greatest mean weight and have also the highest proportional weight

HEIGHT, WEIGHT AND CHEST (EXP.) MEASUREMENTS SHOWING PROPORTIONATE MEASUREMENTS OF TWO OF THEM TO THE TOTAL OF THE THIRD (P_1)

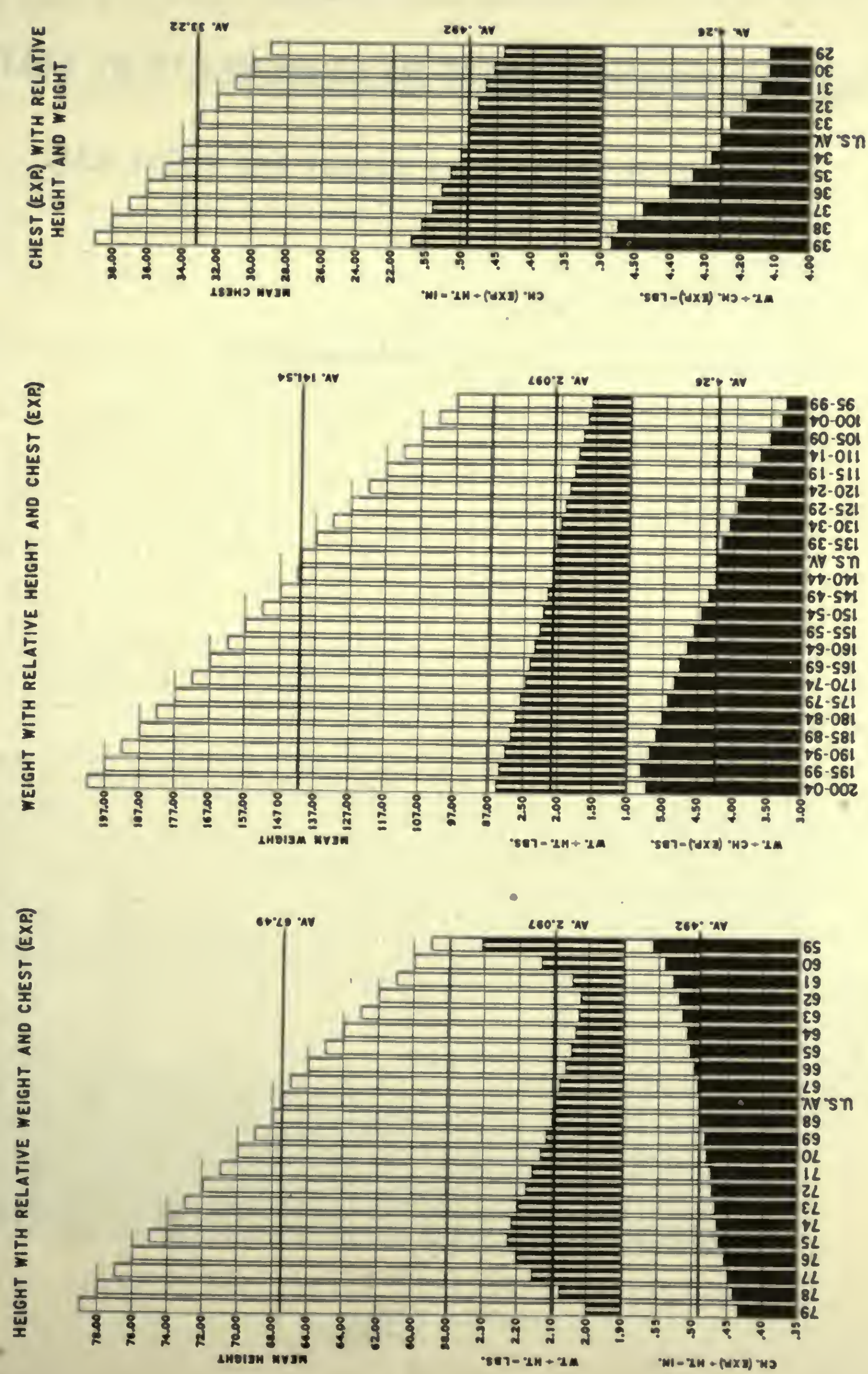

PLATE XIV.

TOTAL AND PROPORTIONATE MEASUREMENTS BY STATES (P₁)

HEIGHT WITH RELATIVE WEIGHT AND CHEST (EXP.)

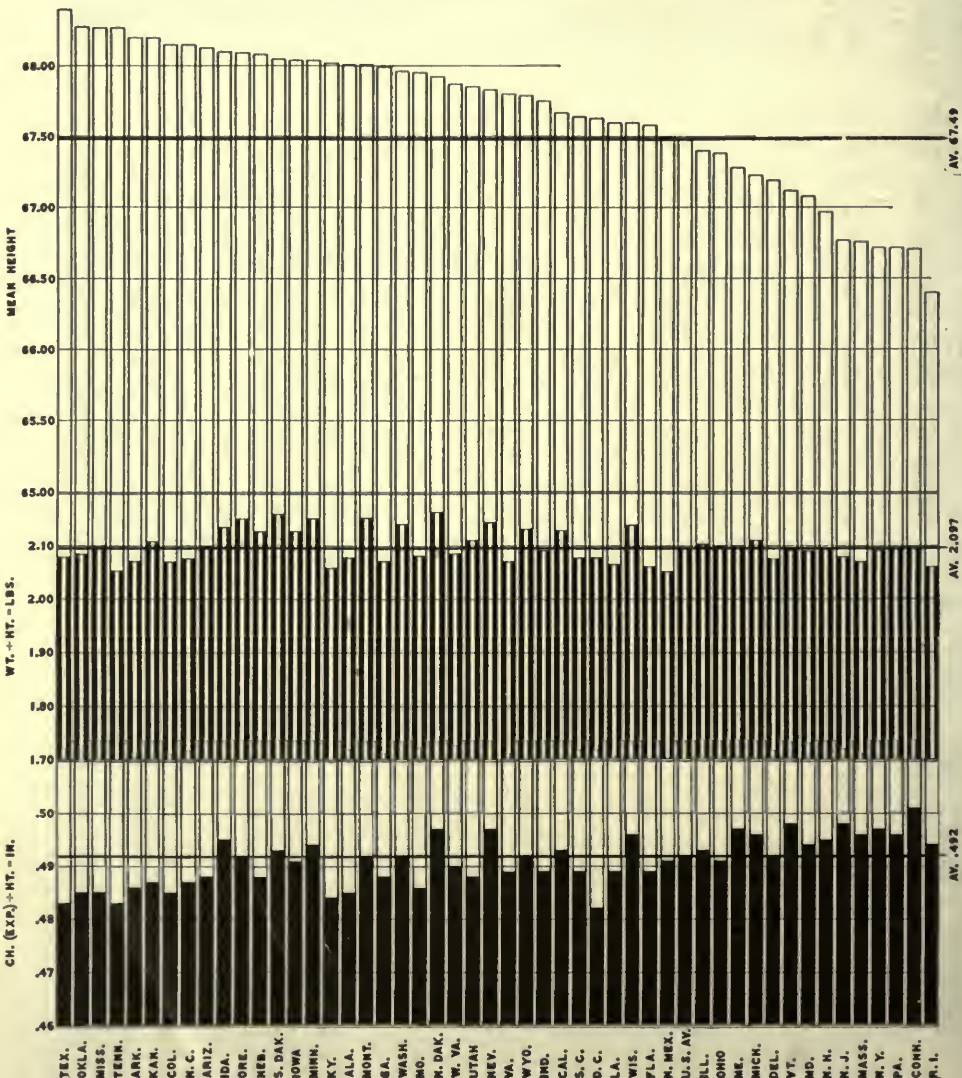

PLATE XV.

TOTAL AND PROPORTIONATE MEASUREMENTS BY STATES (P.)

WEIGHT WITH RELATIVE HEIGHT AND CHEST (EXP.)

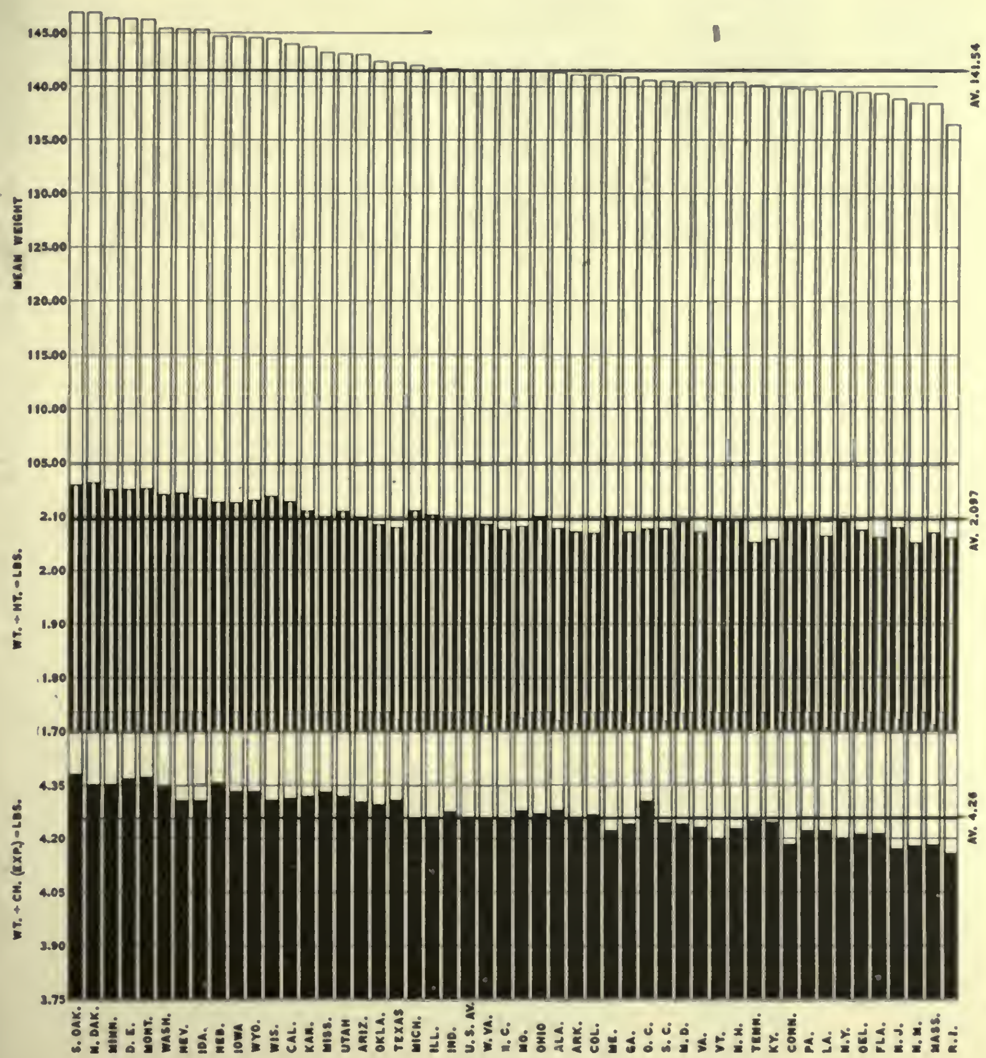

PLATE XVI.

TOTAL AND PROPORTIONATE MEASUREMENTS BY STATES (P.)

CHEST (EXP.) WITH RELATIVE HEIGHT AND WEIGHT

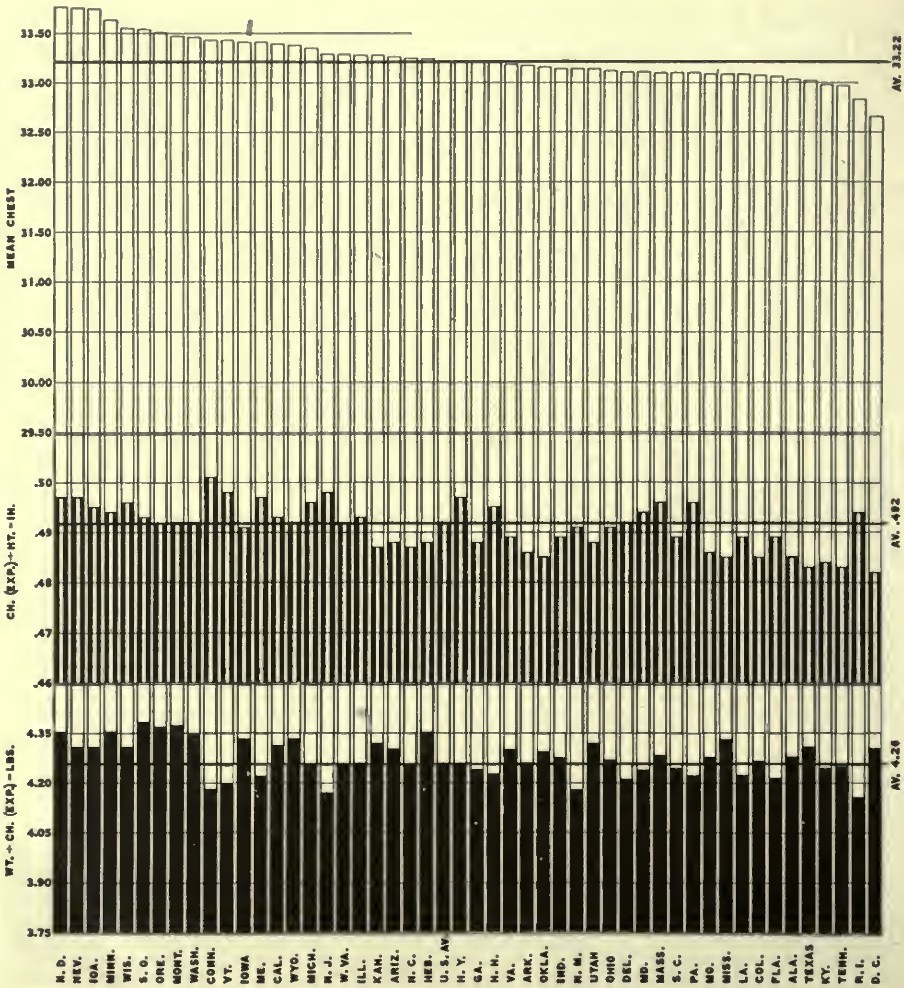

PLATE XVII.

TOTAL AND PROPORTIONATE MEASUREMENTS, GROUPS OF SECTIONS (P.)

HEIGHT WITH RELATIVE WEIGHT AND CHEST (EXP.)

WEIGHT WITH RELATIVE HEIGHT AND CHEST (EXP.)

CHEST (EXP.) WITH RELATIVE HEIGHT AND WEIGHT

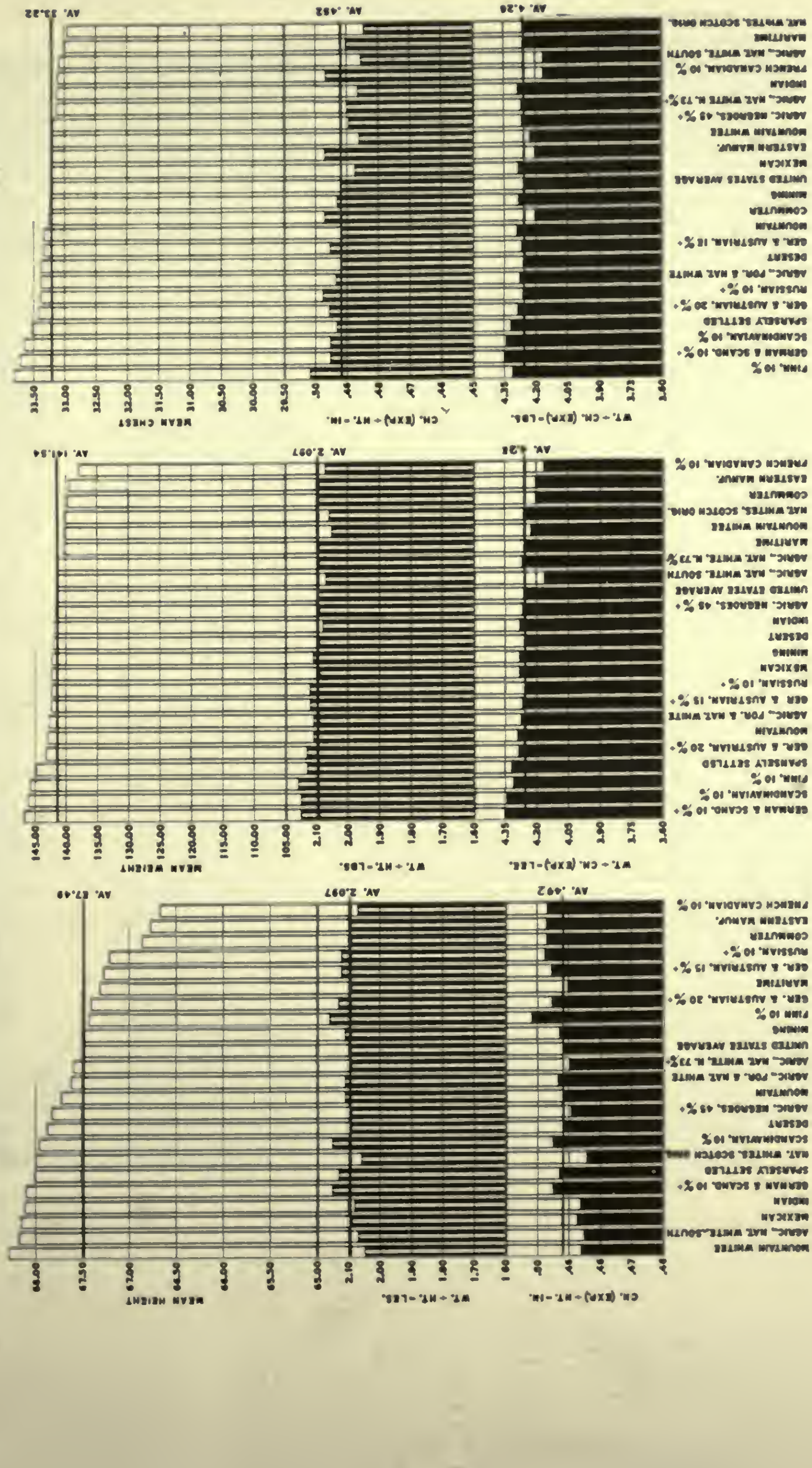

PLATE XVIII.

TOTAL AND PROPORTIONATE MEASUREMENTS BY EACH SECTION (P.)

HEIGHT WITH RELATIVE WEIGHT AND CHEST (EXP.)

FIGURE 1

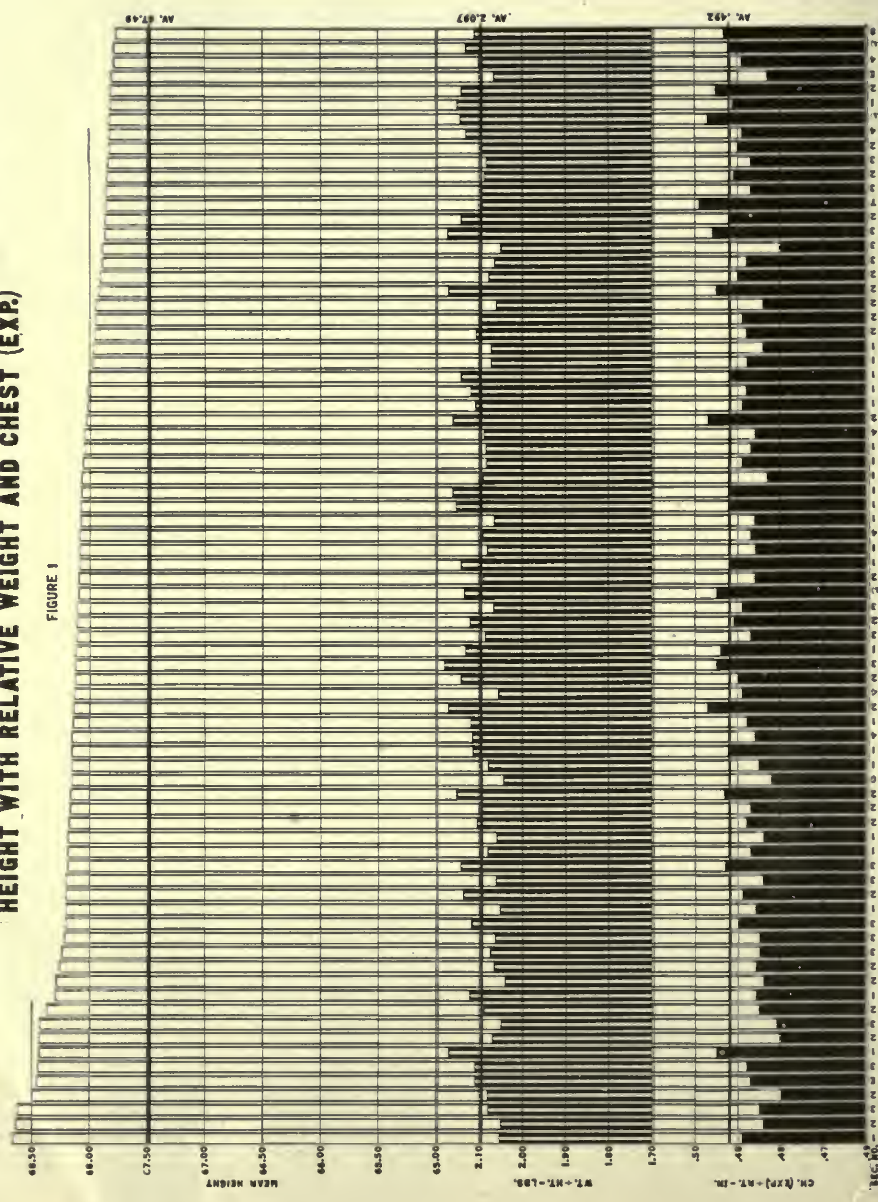

PLATE XIX.

TOTAL AND PROPORTIONATE MEASUREMENTS BY EACH SECTION (P.), (CONT'D.)

HEIGHT WITH RELATIVE WEIGHT AND CHEST (EXP.)

FIGURE 2

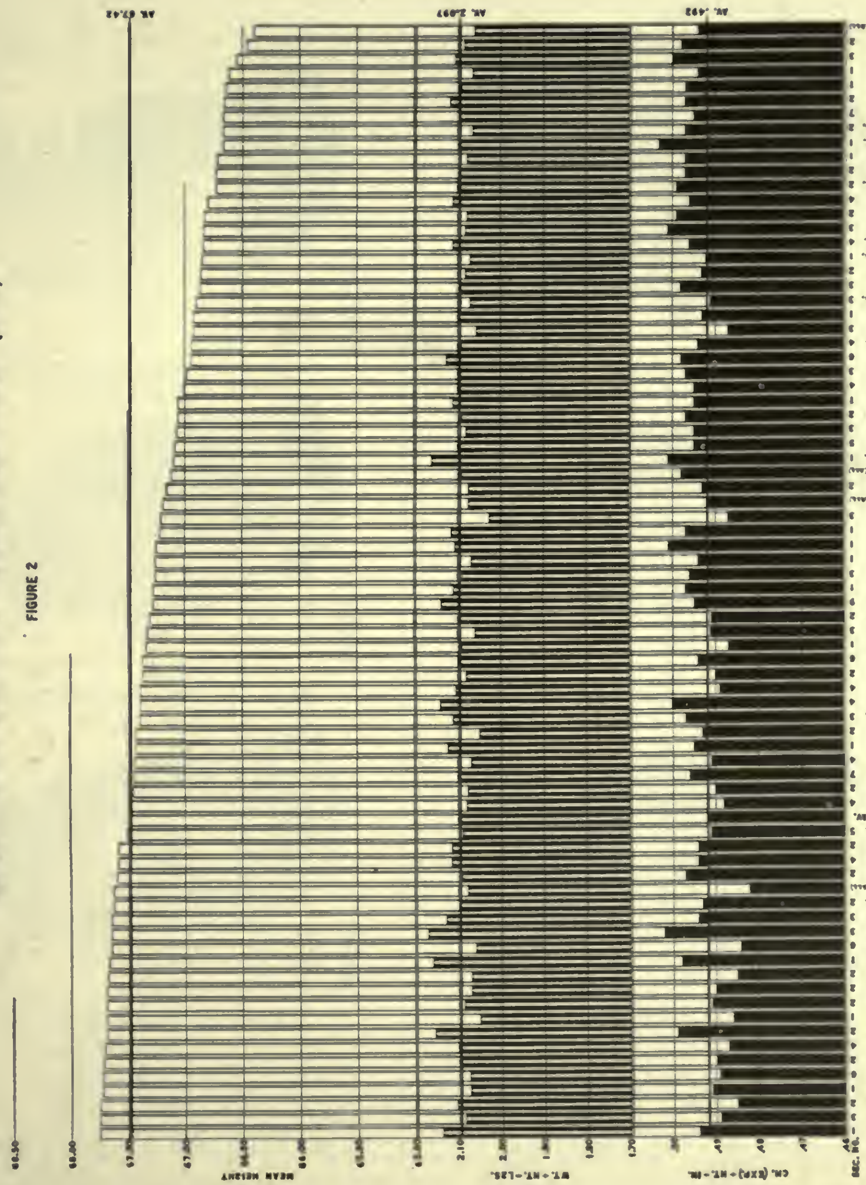

PLATE XIX.

DISTRIBUTION, HEIGHT, WEIGHT & CHEST MEAS.
STATES OF NATIVITY

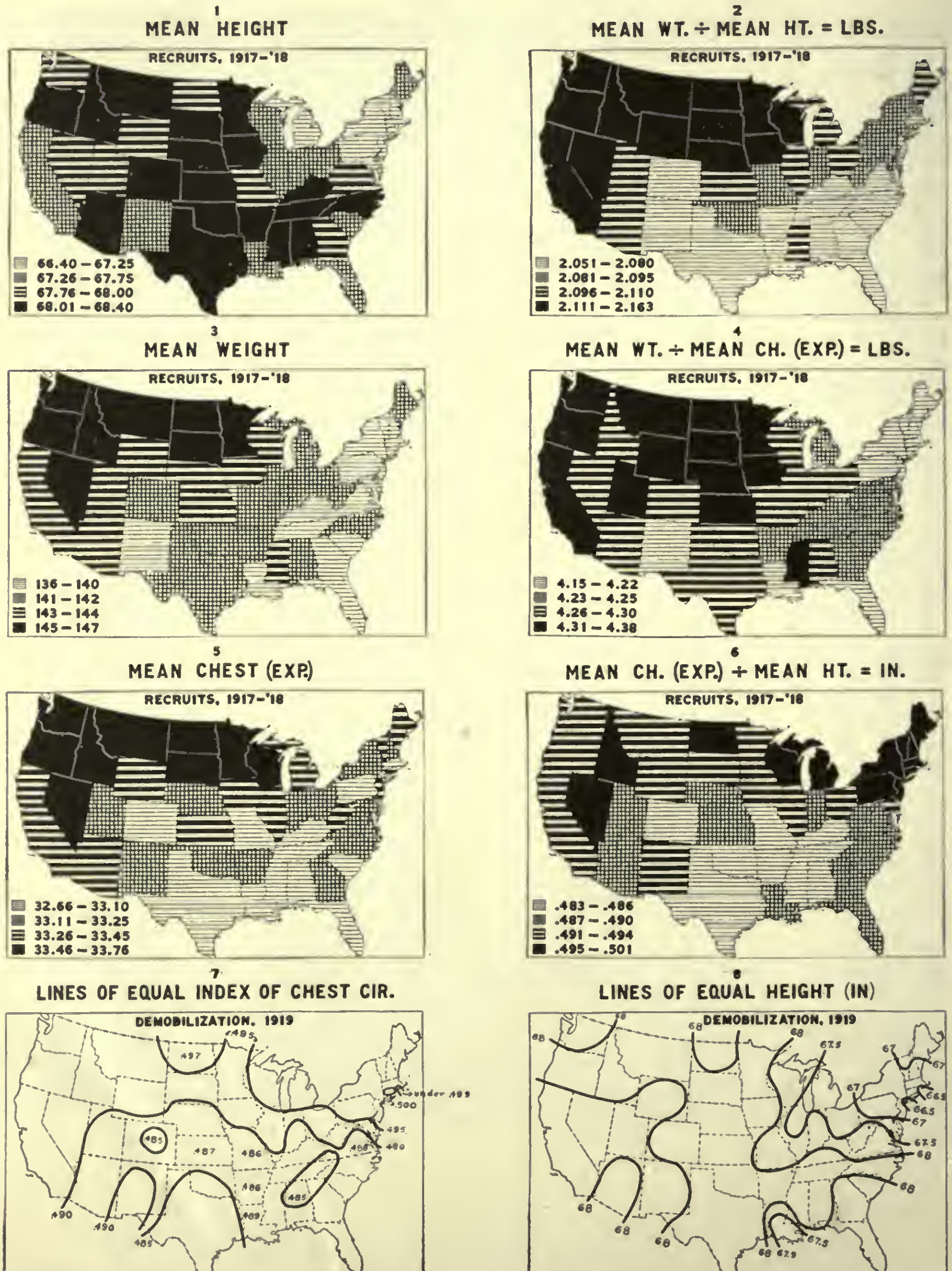

PLATE XX.

divided by the height and the weight divided by the chest circumference (expiration). French-Canadian groups stand at the extreme left of the figure with low absolute and proportional measurements.

In figure 3 the chest circumference (expiration) is taken as the controlling factor. Here again the three "groups" that stood first for mean weight again stand first, but with the order somewhat reversed, it being here Finns, German-Scandinavians, and Scandinavians. In the second and third sections below, which show the quotient of the chest circumference (expiration) divided by the height and the weight divided by the chest circumference (expiration), the superiority of the physique of the Finns is again apparent. At the extreme left stands the "groups" composed of native whites of Scotch origin. They not only have the lowest mean chest circumference (expiration), but also the lowest proportional chest circumference (expiration) to height. The fact that the proportional chest circumference (expiration) to weight reaches the average line is to be accounted for by the exceptionally small divisor, the mean chest circumference (expiration). A further study of Plate XVIII will reveal many interesting facts showing the interrelation of stature, weight, and chest circumference (expiration) associated with the 22 groups of recruits.

Plate XIX, figures 1 and 2, is drawn up in a similar manner to Plate XIV, figure 1. There is shown here the interrelation of stature, weight, and chest circumference (expiration) for the 156 sections into which the United States has been divided for this study, and for that of "Defects Found in Drafted Men."[9] It is seen at once that the statures for recruits from many of the sections are above the average of the statures obtained for the first million draft recruits. At the extreme left of figure 1, with the highest average stature, there are found certain sections of the South where there is a very high percentage of native-born whites of native origin, many of whom are of Scotch descent. The highest average is found in North Carolina, section 1, and this is followed quite closely by Arkansas 2, Missouri 3, Texas 2, 5, and 3. It is seen from this plate that the relative weight and chest circumference (expiration) varies above and below the average. Thus for the first four of the sections named the relative weight and chest circumference (expiration) are markedly below the average, and the men are tall, slender, and small-chested. The greatest proportional weight is found in Minnesota 1, and North Dakota 3. North Dakota 3, moreover, has the greatest proportional chest circumference (expiration). At the extreme right of the list are found the States whose average stature has been materially reduced by immigration from southern Europe. Reading from the right toward the left, we find Rhode Island (all), New York 2, Pennsylvania 3, Pennsylvania 1, New York 1, Pennsylvania 5, Pennsylvania 7, and Massachusetts 2. The majority of these sections show a proportional weight, either average or slightly above the average, but all of them have a proportional chest circumference (expiration) above the average. Thus again it is made clear, as in Plate XIV, figure 1, that the proportional chest circumference (expiration) to the stature increases as the stature decreases.

VI. PIGNET'S INDEX OF ROBUSTNESS.

This index of the constitution or robustness of individuals depends upon certain relation of stature, weight, and chest circumference (Pignet,[20]). The index is calculated according to the following formula: Stature in centimeters − (chest circumference in centimeters + weight in kilograms). Pignet offers the following table of standards, by which one can interpret the results obtained by this formula:

Class.

A.—Under 10: A very powerful constitution.
B.—11–20: Good constitution.
C.—21–25: Mediocre constitution.
D.—26–30: Weak constitution.
E.—31–35: Very weak constitution.
F.—Over 36: Bad constitution.

It will be of interest to see how the selection of medical examiners at demobilization boards was influenced by the constitution or index of robustness as determined by the Pignet formula. [a]

In an appreciative account of Pignet's formula, Butza [21] calls it "the criterion of constitution."

It will be observed that Pignet employs the chest "perimeter." It is clear that the chest girth at rest is used: consequently our chest girths of recruits taken at expiration are too small. To use them in Pignet's formula, it is necessary to add certain constants, and those adopted are as follows:

Chest girth under 32 inches, add 0.50 inch.
Chest girth 32–34.9 inches (inclusive), add 0.75 inch.
Chest girth 35–37.9 inches (inclusive), add 1 inch.
Chest girth 38 and over, add 1.5 inches.

In Table 67 there is considered in classes of stature separated by 2 or 3 inches, the weight in pounds with the number of men measured, circumference of the chest with the number of men measured. In the following columns the stature, chest circumference, and weight are transformed into the metric equivalent. In the last column is given the index of robustness. Under each unit of stature the population is divided into classes containing, respectively, the 5 per cent lightest, the following 10 per cent of greater weight, then the 20 per cent of still greater weight, the 30 per cent of mediocre weight, followed by the 20 per cent of still higher weight, followed by the upper 15 per cent divided into the two classes that include 10 per cent and 5 per cent of the very heaviest men.

Taking first the class of men 59 inches tall, we find that the classes established vary in average weight from 47.4 to 85.6 kilograms, and the corresponding chest circumference increases from 74.9 to 101.3 centimeters. For the 5 per cent shortest men of the smallest weight and chest circumference the index of

---

[a] Pignet's reasoning which led him to suggest the formula given above is as follows:

Chez l'individu normal, le perimètre égale au moins la moitée de la taille, il augmente dans avec elle; de même de poids, dans les organismes normaux, doit s'accrôitre en meme temps que la taille. Ces trois quantités, ayant une marche parallèle, devalent, nous semblait- il, conservir entre elles une différence constante chez les individus normaux, quelle que fut leur taille. Nous eûmes alors l'idée d'additioner le perimètre et les poids et de soustraire de la taille, la somme ainsi obtenue. Soit un homme normal de 1m 54 (154 centimeters) dont le perimètre thoracic est 78 centimeters et le poids 54 kilos. Nous faisons la somme de ce perimètre et de ce poids: 78+54=132. Cette somme est ensuits soustraite de la taille; 154−132=22.

robustness is 27.5, which belongs to the category of weak men of Pignet's classification. In the next higher 10 per cent the index of robustness is 20.31, which belongs to Pignet's median group. The next higher 20 per cent give an index of 13.2, which also belongs to Pignet's good group. The middle 30 per cent, with an index of 3.1, belong to Pignet's class of very good constitution, and the heavier men with larger chest belong to extremely superior members of this category. It appears, then, that camp examiners accepted very few men of the stature of 59 inches who fell into a category below the medium, and indeed all but about 15 per cent belong to the category of good or very good men. This is, of course, to have been expected, as the Army regulations required the elimination of all men under 60 inches. Indeed, we should probably expect no men under 60 inches who did not belong to the category of the exceptionally robust.

Of the men 62 inches (157 centimeters) tall, we find that nearly 5 per cent fall into the category of very weak constitution and an additional 30 per cent into the category of the weak or median. The middle 30 per cent fall into the category of good, whereas the remainder are of strong or very strong constitution.

In the group of men 65 inches in stature (165 centimeters), we find that the average of the lower 15 per cent belong to Pignet's bad category, the next 20 per cent to the weak, and the median 30 per cent to the category of the good. As we pass now to the taller statures, the proportion of men of bad constitution increases until the group of men with a stature of 77 inches, 35 per cent were of bad constitution and only about 35 per cent were better than of median constitution.

Naturally Pignet's index is purely an empirical one and the results have to be interpreted with caution. The formula and the standards established by Pignet do, however, point out the very practical matter, that stature should be considered with weight and chest circumference, and that a satisfactory rating of robustness can be determined only by considering the three together.

In connection with the matter of robustness and military efficiency the statement made by Gould seems important. It is generally held by line officers that men below 60 inches in height are not capable of standing the severe service required in the Army, especially in carrying weight on the back. He says concerning our experiences in the Civil War, "The testimony is overwhelming that very tall men do not bear the fatigues of a campaign so well as persons of ordinary stature; that they are less capable of performing long marches and are more frequently on the sick list at other times." On the whole, the Army ideals of selecting men of medium stature for Army service is justified. In connection with the draft of 1917, efforts were made on more than one occasion to raise the minimum stature to 63 inches. This was due to failure to recognize that there was in this country a great number of short men belonging to the Mediterranean races and to the group of Polish Jews in whom the mean stature is only slightly above 63 inches. Experience in the Italian army indicated that even short men, if they are not too far removed from the standard of their race, are capable of performing excellent military service. In case it ever again becomes necessary to institute a selective draft in this country it should not be forgotten that this country has a great population of short men and that it includes many thousands for whom a stature of 60 inches is not a greater departure from the average than a stature of 65 inches is in men of the Nordic races.

TABLE 67.—*Comparison of Pignet's index for men of various heights with average chest and weight for certain per cents of the men of each height.*

Percentage of this height.	Height, in inches.	Mean weight, in pounds.	Number of men.	Mean chest (expiration), in inches.	Correction, in inches.	Mean chest (expiration), in inches (corrected to "rest").	Number of men.	Height, in centimeters.	Weight, in kilos.	Chest measurement, in centimeters (corrected to "rest").	Pignet's index.
5	59	104.50	194	29.00	0.50	29.50	128	149.86	47.40	74.93	27.53
10	59	114.82	460	30.00	.50	30.50	241	149.86	52.08	77.47	20.31
20	59	124.85	585	31.00	.50	31.50	366	149.86	56.67	80.01	13.18
30	59	137.38	931	32.48	.75	33.23	1,208	149.86	62.32	84.40	3.14
20	59	151.26	605	34.41	.75	35.16	811	149.86	68.63	89.31	− 8.08
10	59	166.30	272	36.31	1.00	37.31	248	149.86	75.44	94.77	−20.35
5	59	188.62	77	38.38	1.50	39.88	84	149.86	85.55	101.30	−36.99
5	62	105.40	1,362	29.00	.50	29.50	850	157.48	47.81	74.93	34.74
10	62	112.00	2,081	30.00	.50	30.50	1,822	157.48	50.80	77.47	29.21
20	62	117.00	2,557	31.00	.50	31.50	2,884	157.48	53.07	80.01	24.40
30	62	124.33	4,774	32.44	.75	33.19	6,313	157.48	56.39	84.30	16.79
20	62	134.01	2,805	34.73	.75	35.48	3,046	157.48	60.79	90.12	6.57
10	62	145.54	1,455	36.00	.75	36.75	541	157.48	66.00	93.35	− 1.87
5	62	166.68	610	37.61	1.00	38.61	392	157.48	75.62	98.07	−16.21
5	65	105.92	1,438	29.00	.50	29.50	2,759	165.10	48.03	74.93	42.14
10	65	115.34	11,770	30.00	.50	30.50	6,757	165.10	52.30	77.47	35.33
20	65	124.36	23,055	31.00	.50	31.50	12,514	165.10	56.43	80.01	28.66
30	65	135.20	22,710	32.97	.75	33.72	33,275	165.10	61.33	85.65	18.12
20	65	145.72	16,741	34.00	.75	34.75	12,347	165.10	66.09	88.27	10.74
10	65	161.92	5,067	35.00	.75	35.75	7,618	165.10	73.43	90.81	.86
5	65	184.76	1,123	36.75	1.00	37.75	7,156	165.10	83.81	95.89	−14.60
5	67	110.50	2,528	29.00	.50	29.50	2,583	170.18	50.13	74.93	45.12
10	67	120.25	15,679	30.00	.50	30.50	7,589	170.18	54.55	77.47	38.16
20	67	129.76	33,194	31.21	.50	31.71	41,234	170.18	58.83	80.54	30.81
30	67	139.36	35,483	33.00	.75	33.75	26,558	170.18	63.23	85.73	21.22
20	67	149.09	22,963	34.00	.75	34.75	22,018	170.18	67.63	88.27	14.28
10	67	160.64	13,073	35.00	.75	35.75	14,015	170.18	72.86	90.81	6.51
5	67	182.87	4,924	36.66	1.00	37.66	14,294	170.18	82.96	95.66	− 8.44
5	69	115.14	2,032	29.77	.50	30.27	5,585	175.26	52.20	76.89	46.17
10	69	125.40	11,470	31.00	.50	31.50	10,779	175.26	56.88	80.01	38.37
20	69	134.77	26,043	32.00	.50	32.50	18,997	175.26	61.15	82.55	31.56
30	69	144.42	29,999	33.00	.75	33.75	23,133	175.26	65.50	85.73	24.03
20	69	154.09	21,468	34.00	.75	34.75	21,393	175.26	69.89	88.27	17.10
10	69	165.64	14,051	35.37	.75	36.12	23,622	175.26	75.12	91.74	8.40
5	69	185.68	5,445	37.68	1.00	38.68	7,614	175.26	84.24	98.25	− 7.23
5	71	124.06	2,289	29.79	.50	30.29	1,712	180.34	56.30	76.94	47.10
10	71	132.00	3,016	31.00	.50	31.50	3,896	180.34	59.87	80.01	40.46
20	71	139.87	11,368	32.00	.50	32.50	7,731	180.34	63.46	82.55	34.33
30	71	151.86	20,945	33.52	.75	34.27	22,351	180.34	68.90	87.05	24.39
20	71	164.17	8,974	35.00	.75	35.75	8,642	180.34	74.48	90.81	15.05
10	71	175.67	5,470	36.33	1.00	37.33	7,960	180.34	79.66	94.82	5.86
5	71	194.15	2,295	38.42	1.50	39.92	2,317	180.34	88.09	101.40	− 9.15
5	73	128.11	510	29.65	.50	30.15	980	185.42	58.15	76.58	50.69
10	73	140.20	1,852	32.00	.50	32.50	1,652	185.42	63.59	82.55	39.28
20	73	149.73	3,516	33.00	.75	33.75	2,798	185.42	67.87	85.73	31.82
30	73	159.43	3,755	34.00	.75	34.75	3,203	185.42	72.30	88.27	24.85
20	73	170.99	3,711	35.40	.75	36.15	4,758	185.42	77.52	91.82	16.08
10	73	185.57	1,237	37.00	1.00	38.00	995	185.42	84.20	96.52	4.70
5	73	200.30	617	38.48	1.50	39.98	898	185.42	97.79	101.55	−13.92
5	75	128.09	96	30.57	.50	31.07	124	190.50	58.21	78.92	53.37
10	75	145.13	259	32.00	.50	32.50	223	190.50	65.86	82.55	42.09
20	75	154.87	550	33.58	.75	34.33	907	190.50	70.26	87.20	33.04
30	75	166.86	911	35.00	.75	35.75	516	190.50	75.71	90.81	23.98
20	75	179.24	406	36.00	.75	36.75	409	190.50	81.33	93.35	15.82
10	75	190.76	271	37.00	1.00	38.00	271	190.50	86.55	96.52	7.43
5	75	202.00	127	38.42	1.50	39.92	127	190.50	91.63	101.40	− 2.53
5	77	119.06	17	30.60	.50	31.10	20	195.58	54.03	78.99	62.56
10	77	138.28	39	32.00	.50	32.50	29	195.58	62.74	82.55	50.29
20	77	151.80	76	33.00	.75	33.75	61	195.58	68.86	85.73	40.99
30	77	167.88	102	34.48	.75	35.23	132	195.58	76.12	89.48	29.98
20	77	181.09	75	36.00	.75	36.75	61	195.58	82.15	93.35	20.08
10	77	194.69	26	37.00	1.00	38.00	32	195.58	88.32	96.52	10.74
5	77	202.00	25	38.61	1.50	40.11	26	195.58	91.63	101.88	2.07

PIGNET'S INDEX
MEN OF VARIOUS HEIGHTS (P_1)
PERCENTAGE DISTRIBUTION OF EACH HEIGHT

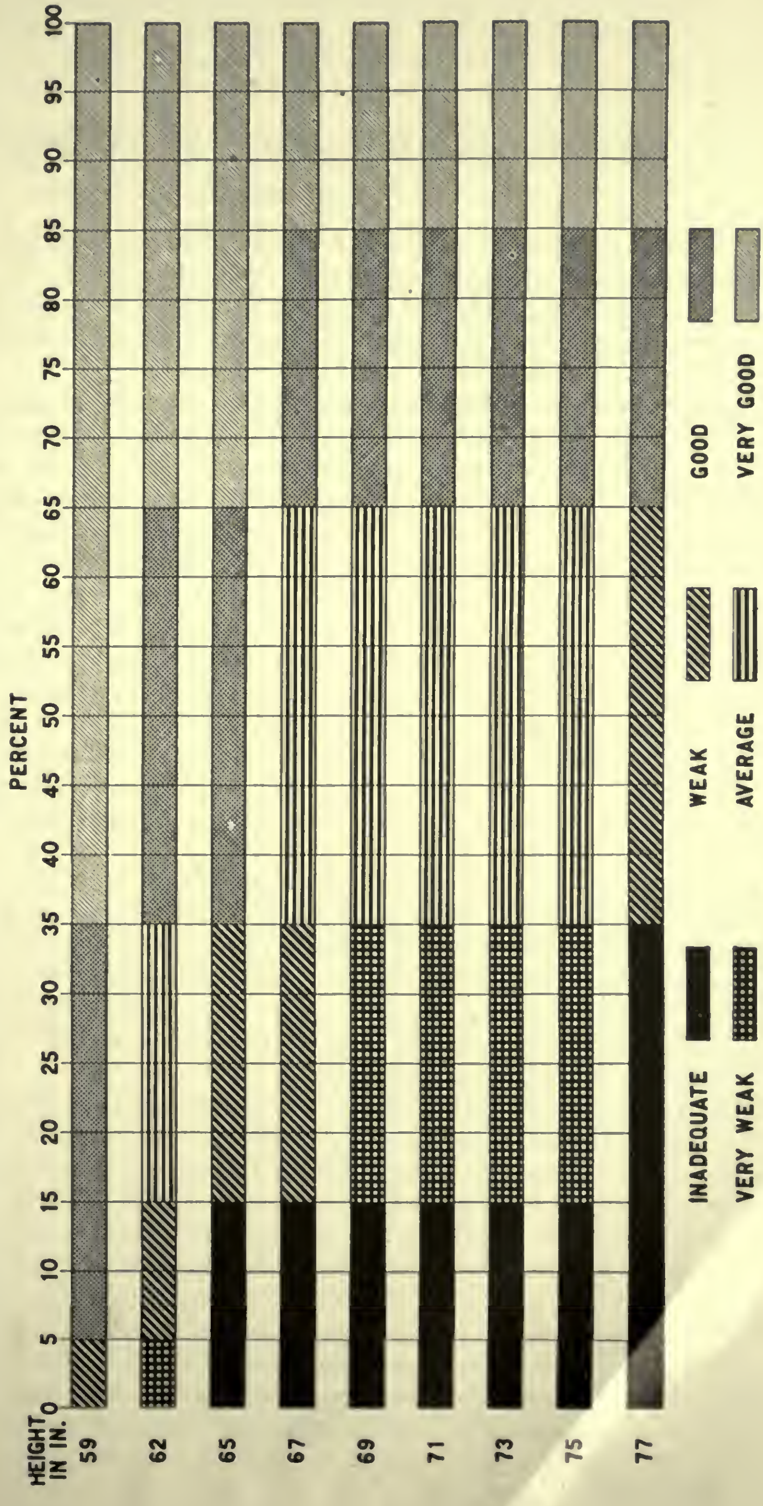

PLATE XXI.

D. SPECIAL ANTHROPOLOGICAL MEASUREMENTS.

1. SITTING HEIGHT.

(*a*) *General discussion.*—This is the vertical distance from the surface of the bench on which the subject sits to the vertex of his head. It measures the length of trunk, neck, and head, as this length might be measured on a horse. This measurement is readily taken by the same method as standing height, only the zero point is not the floor but the bench level.

This dimension is important because the trunk alone constitutes the most important part of it, so much so that it is sometimes (erroneously) spoken of as the trunk length. From a medical point of view it gives, combined with chest circumference, a better index to trunk robustness than stature and chest. For the purposes of measuring for uniforms it is next in importance to chest circumference in designing blouse pattern of different sizes.

The proportion of sitting height to total stature varies with sex. It is greater in adult females than males, due (in part) to the slightly longer trunk of the former. It diminishes greatly with the changing age from about 66 per cent of stature at birth to 51 per cent at maturity (15 years). It varies with race, being about 51 per cent to 53.1 per cent of total stature in adult Europeans, 49 in Masai of South Africa, 53 in Chinese and North American Indians, up to 55 in Aino. As for Europeans the proportion of sitting height to stature is given for male Ukrainian Jews as 51.4; French, 52; Belgians, 52.2; English, 52.4; and Scandinavians, 53.

(*b*) *Mean sitting height.*—The mean sitting height of 96,239 white troops is 90.39 centimeters. (See Table LXXXIII). Since the mean stature of white troops is 171.99 centimeters, the relative mean sitting height is 52.55 per cent of stature. This is about the average of adult Europeans. The distribution of frequency of mean sitting height is given in Table LXXXIII, from which it appears that the range in sitting height is between 70 and 107 centimeters, and the mode lies in class 90–91 centimeters.

Thus it appears that sitting height is roughly equal to or slightly in excess of half of the total stature on the average, but this is not true by any means for all individuals. Thus in Table LXXXIII there are five individuals with a sitting height of, say, 76 centimeters and 182 centimeters total stature. For these individuals the relative sitting height is 41.76; that is, in such individuals the sitting height was about two-fifths of the whole stature. In the same table are two individuals of, say, 98 centimeters sitting height and 148 total stature. For such individuals the relative sitting height is 66.51, or two-thirds of the total stature. Such persons have clearly very short legs and might properly be placed in the category of achondroplastic dwarfs, since their legs were only two-thirds of the normal proportional stature. Caution should be observed in making use of such extreme data, for these measurements were possibly inaccurately made or recorded.

(c) *Standard deviation.*—The standard deviation of sitting height as given in Table LXXXIII is 3.51 centimeters. This is over 5 per cent greater than half of the standard deviation of total stature, although the average of sitting height is only $2\frac{1}{2}$ per cent greater than half of the average stature. This indicates that sitting height is a more variable dimension than total stature, and this is partly because the length of the neck and height of the head are both highly variable elements of total stature and they are both included in sitting height. They constitute less important fractions of total height than they do of sitting height.

(d) *Comparison of eight European races.*—The distribution of absolute and proportional frequencies in different classes of sitting height is given for eight European races in Table 69. Table 68 summarizes their constants.

TABLE 68.—*Absolute and relative sitting heights and standard deviations with coefficient of variations in eight European races, demobilization, 1919.*

[Sitting height in centimeters.]

Race.	Number measured.	Sitting height.	Relative sitting height.	Standard deviation.	Coefficient of variation.
		Centimeters.	*Per cent.*	*Centimeters.*	*Per cent.*
Scotch	2,074	90.75	52.60	3.47	3.8
English	4,199	90.63	52.67	3.45	3.8
Irish	6,137	90.46	52.79	3.31	3.7
German	7,051	90.36	52.52	3.54	3.9
French	1,455	89.47	53.07	3.24	3.6
Polish	2,404	89.42	52.78	3.37	3.8
Hebrew	1,684	88.06	52.76	3.32	3.8
Italian	3,506	87.76	53.13	3.33	3.8

From these comparisons it appears that the Scotch have the tallest sitting height and the Italians the shortest absolute sitting height, but this is because the Scotch and Italians are, respectively, tall and short races. The Germans are the most variable in their sitting height and have the highest coefficient of variation. The French are the least variable although they are by no means the shortest of the races.

The Italians have the greatest relative sitting height, which means that they have the shortest legs, while the Germans have the shortest relative sitting height, which means they have relatively the longest legs. In general, the difference between the relative sitting height and 100 gives the measure of the relative length of legs.

From the foregoing tables it appears that the Nordic races have relatively shorter sitting height, which means relatively longer legs. Since they have as a whole a relatively shorter span than the other peoples, Nordics would seem to have increased length of leg and diminished length of arm; in so far they depart further than any other race from the condition of the anthropoid apes which have short legs and long arms.

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TABLE 69.—*Comparative frequency distribution of sitting height in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Sitting height, in centimeters.																			
		70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87	88-89	90-91	92-93	94-95	96-97	98-99	100-101	102-103	104-105	106-107	108-109
English	4,199		4	1		1	22	59	190	412	801	1,046	867	500	206	65	20	5			
Scotch	2,074	1	3	1	1	2	10	20	78	206	371	522	451	267	96	35	7	1		2	
Irish	6,137	4	2	2		1	29	74	260	663	1,267	1,559	1,258	662	260	84	9	2	1		
German	7,051	1	6	5	4	6	48	107	365	795	1,415	1,735	1,336	761	323	125	15	1	2		2
French	1,455	1		1		4	2	27	104	236	377	341	213	106	29	10	4				
Italian	3,506	1	3	2	4	13	60	228	539	778	876	577	278	106	31	6	4				
Polish	2,404	1	1	2		1	20	67	172	390	562	578	364	165	59	18	4				
Hebrew	1,684	2	1		2	3	22	96	219	381	435	288	152	57	21	5					
Number measured	28,510	11	20	14	11	31	213	678	1,927	3,861	6,104	6,646	4,918	2,624	1,025	348	63	9	3	2	2
Not measured	160																				
Total	28,670																				

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Sitting height, in centimeters.																				Total.
		70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87	88-89	90-91	92-93	94-95	96-97	98-99	100-101	102-103	104-105	106-107	108-109	
English	4,199		0.95	0.24		0.24	5.24	14.05	45.25	98.12	190.75	249.11	206.48	119.07	49.06	15.48	4.76	1.19				1,000
Scotch	2,074	0.48	1.45	.48	0.48	.96	4.82	9.74	37.61	99.32	178.89	251.69	217.46	128.74	46.29	16.88	3.38	.48		0.96		1,000
Irish	6,137	.65	.33	.33		.16	4.73	12.06	42.36	108.03	206.45	254.03	205.00	107.87	42.36	13.69	1.47	.33	0.16			1,000
German	7,051	.14	.85	.71	.57	.85	6.81	15.17	51.77	112.75	200.68	246.06	189.34	107.92	45.81	17.73	2.13	.14	.28		0.28	1,000
French	1,455	.69		.69		2.75	1.37	18.56	71.48	162.20	259.11	234.35	146.38	72.85	19.93	6.87	2.75					1,000
Italian	3,506	.29	.86	.57	1.14	3.71	17.11	65.03	153.73	221.90	249.86	164.58	79.29	30.23	8.84	1.71	1.14					1,000
Polish	2,404	.42	.42	.83		.42	8.32	27.87	71.55	162.21	233.78	240.42	151.41	68.64	24.54	7.49	1.66					1,000
Hebrew	1,684	1.19	.59		1.19	1.78	13.06	57.01	130.05	226.26	258.31	171.02	90.27	33.85	12.47	2.97						1,000
Number measured	28,510	.39	.70	.49	.39	1.09	7.47	23.78	67.59	135.41	214.10	233.11	172.50	92.04	35.95	12.21	2.21	.32	.11	.07	.07	1,000
Not measured	160																					
Total	28,670																					

(*e*) *Comparison of color races.*—The mean sitting height of Negro troops is 87.35 centimeters, which is 3.04 centimeters less than the mean sitting height of white troops, and this despite the fact that the mean stature of the corresponding troops, as shown in Tables LXXXIII and LXXXVII, is the same to tenths of a millimeter. This tells us that the Negro troops had shorter trunk, head and neck and longer legs than white troops of the same size. The standard deviation of sitting height is 3.48 for Negro troops, as contrasted with 3.51 for whites, indicating that, just as the average is less, so the variability is smaller. The coefficient of variability of the Negro troops is 39.8 per cent, while that of the white troops is 38.8 per cent. Thus the Negro troops show themselves in respect to sitting height to be slightly more variable than the white troops.

The table below, based on Tables 103, 104, and 107, gives the absolute and relative sitting heights for the five color races.

TABLE 70.—*Absolute and relative sitting height in five color races, demobilization, 1919.*

[Sitting height in centimeters.]

Race.	Number measured.	Mean sitting height.	Relative sitting height.
White	96,239	90.39	52.56
Negro	6,433	87.35	50.79
Indian	105	90.10	52.53
Chinese	22	89.05	52.04
Japanese	32	87.88	51.41

Indians and the Oriental races are intermediate in sitting height between the white and the Negro, and the Indian approaches very close to the white in relative sitting height.

2. SPAN.

(*a*) *General discussion.*—It is a popular assertion that one's span is equal to one's stature. This is seen to be nearly true, *on the average*, for the Irish and Scotch. But it does not hold for the individual. Thus among the white troops (Table LXXXIV) we find a span of 152 centimeters associated with a stature of 177 centiemters, giving a relative span of 0.86. Also, there is a span of 192 centimeters associated with a stature of 168, or 1.14. The most extreme ratios in Table LXXXIV are 79 and 131, respectively; the latter ratio approaches that of the gorilla. There is the possibility that some of these remote extremes are due to errors in measurement; so too much stress must not be laid on them.

(*b*) *Mean span.*—The mean span for 96,596 white troops at demobilization (1919) is 175.58 centimeters. This is to be compared with the mean stature of the corresponding white troops of 171.99 centimeters (Table LXXXIV). The span is 3.59 centimeters greater than the stature and the relative span is 102.1.

(*c*) *The comparison of eight European races.*—The absolute mean span and relative spans for the different European races is given in Table 71, based on Table 72.

TABLE 71.—*Absolute and relative span with the standard deviation in eight European races. demobilization, 1919.*

[Span in centimeters.]

Race.	Number measured.	Mean span.	Standard deviation.	Relative span.
German	7,060	176.66	7.98	102.7
English	4,197	175.61	7.95	102.1
Scotch	2,066	175.60	7.92	101.8
Polish	2,406	174.60	7.53	103.1
Irish	6,155	174.10	7.75	101.6
French	1,459	172.85	7.72	102.5
Hebrew	1,690	170.30	7.42	102.0
Italian	3,519	169.19	7.51	102.4

From these comparisons it appears that the Germans of our data have the greatest and the Italians the least absolute span; that the Germans are most variable in this respect and the Hebrews least; that the Polish have the greatest relative span and the Irish the least. Except for the Hebrews, the inhabitants of the British Isles have the shortest relative span. While the central Europeans have the shortest relative span of our recruits, it is in general lower than that given by Martin for the corresponding European races, possibly because the stature of each separate race is greater in the United States than in Europe, due to a selective immigration of tall persons.

TABLE 72.—*Comparative frequency distribution of span in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Span, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–205	206–207	208–209	210 and over.
English	4,197	9	2	6	10	31	24	58	102	173	215	282	341	404	450	419	393	321	292	218	157	109	85	44	29	11	8			2			2
Scotch	2,066		4	4	3	8	20	38	56	72	99	149	191	181	182	214	216	166	151	92	79	53	35	29	12	6	3	3					
Irish	6,155		4	10	37	43	60	119	220	303	382	573	583	602	635	598	536	427	315	256	177	110	69	46	21	15	9	2		1	1		1
German	7,060	2	3	7	11	22	54	91	143	220	331	426	536	619	664	710	701	634	507	438	314	226	164	109	54	34	29	7	3		1		
French	1,459		3	5	10	10	23	46	75	76	122	112	162	139	148	133	109	87	73	51	32	15	12	14	1	1							
Italian	3,519	2	22	31	47	90	134	198	289	307	352	381	363	318	309	217	161	113	63	51	29	21	10	6	3		1	1					
Polish	2,406		2	5	4	14	30	51	59	101	147	168	224	240	284	236	265	174	134	87	63	50	29	19	13	3	2	1	1				
Hebrew	1,690		6	16	18	25	51	91	107	119	160	176	195	171	142	139	97	68	43	26	18	12	5	3	2								
Number measured	28,552	13	46	84	140	243	396	692	1,051	1,371	1,808	2,267	2,595	2,674	2,814	2,666	2,478	1,990	1,578	1,219	869	596	409	270	135	70	52	14	4	3	2		3
Not measured	118																																
Total	28,670																																

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Span, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–205	206–207	208–209	210 and over.	Total.
English	4,197	2.14	0.48	1.43	2.38	7.39	5.72	13.82	24.30	41.22	51.23	67.19	81.25	96.27	107.22	99.83	93.64	76.49	69.58	51.94	37.41	25.97	20.25	10.48	6.91	2.62	1.91			0.48			0.48	1,000
Scotch	2,066		1.94	1.94	1.45	3.87	9.68	18.40	27.11	34.85	47.92	72.12	92.45	87.61	88.09	103.58	104.55	80.35	73.09	44.53	38.24	25.65	16.94	14.04	5.81	2.90	1.45	1.45						1,000
Irish	6,155		.65	1.62	6.01	6.99	9.75	19.33	35.75	49.23	62.07	93.01	94.73	97.81	103.17	97.17	87.09	69.38	51.18	41.60	28.76	17.87	11.21	7.47	3.41	2.44	1.46	.32		.16	0.16		.16	1,000
German	7,060	.28	.42	.99	1.56	3.12	7.65	12.89	20.26	31.16	46.88	60.34	75.92	87.67	94.05	100.57	99.29	89.80	71.81	62.04	44.48	32.01	23.23	15.44	7.65	4.82	4.11	.99	0.42		.14			1,,00
French	1,459		2.06	3.48	6.86	6.86	15.77	31.53	51.41	52.09	83.62	76.77	111.04	95.28	101.44	91.16	74.71	59.63	50.04	34.96	21.93	10.28	8.23	9.60	.69	.69								11,00
Italian	3,519	.57	6.25	8.81	13.36	25.58	38.08	56.26	82.13	87.24	100.03	108.27	103.15	90.37	87.81	61.66	45.75	32.11	17.90	14.40	8.24	5.97	2.84	1.71	.85		.28	.28						1,000
Polish	2,406		.83	2.08	1.66	5.82	12.47	21.20	24.52	41.98	61.10	69.83	93.10	99.75	118.04	98.09	110.14	72.32	55.70	36.16	26.18	20.78	12.05	7.90	5.40	1.25	.83	.42	.42					1,000
Hebrew	1,690		3.55	9.47	10.65	14.79	30.18	53.85	63.31	70.41	94.68	104.14	115.39	101.18	84.02	82.25	57.40	40.24	25.44	15.39	10.65	7.10	2.96	1.78	1.18									1,000
Number measured	28,552	.46	1.61	2.94	4.90	8.51	13.87	24.24	36.81	48.02	63.32	79.40	90.89	93.65	98.56	93.37	86.79	69.70	55.27	42.70	30.44	20.86	14.33	9.46	4.73	2.45	1.82	.49	.14	.11	.07		.11	1,000
Not measured	118																																	
Total	28,670																																	

(*d*) *Comparison of the color races.*—The mean span of the Negro troops is 180.76. This is to be compared with the mean stature of the corresponding Negro troops of 171.97 (Table LXXXIX). It exceeds that of the white troops by 5.18 centimeters, or about 2 inches. Thus the span is 8.79 centimeters greater than the stature of the Negro troops; or the relative span is 105.2, a striking increase from the white race of 102.1. This great relative span has been noticed by all observers.

Also the span is decidedly more variable in the colored (8.59) than in the white troops (7.95), and this difference is greater than would be expected, merely from the absolute difference in average span, for the coefficient of variation is 4.75 in Negroes and 4.53 in whites. Since in infants the relative span is about 92 per cent of height, it appears that in the Negro the development of the span has progressed farther beyond the infantile condition than in the whites.

TABLE 73.—*Mean absolute and relative spans in the five color races, demobilization, 1919.*

[Span in centimeters.]

Race.	Number measured.	Mean span.	Relative span.
White	96,596	175.58	102.1
Negro	6,441	180.76	105.2
Chinese	23	176.41	103.1
Japanese	32	177.25	103.7
Indian	106	176.86	103.1

The two Oriental races and the Indians are intermediate between the whites and Negro.

3. HEIGHT OF STERNAL NOTCH.

(*a*) *General discussion.*—The sternal notch, which marks the upper end of the sternum, marks also essentially the upper limit of the trunk. It corresponds closely to the level of cross section No. 22 of trunk in Eycleshymer and Shoemaker's "Cross-section Anatomy."[22] The principal viscera that rise above this level are the apices of the lungs and certain large blood vessels. Taken in connection with height of pubis it is useful in measuring the length of the trunk, a measure which is essential for estimating the volume of the trunk, which in turn is a matter of medico-military importance.

The method of measuring the height of the sternal notch is either direct with an anthropometer, or by the use of a plumb bob and cord falling from the end of a pencil or tongue depressor held horizontal at level of the notch. The anthropometer is read direct, the plumb line by reference to the vertical scale on the wall.

The sitting height of the sternal notch is a useful measure because it gives length of trunk direct and is easily made by the anthropometer, of which one end is placed on the bench on which the subject is sitting and the movable arm is brought to the level of the sternal notch. This latter measure ranges in the male and in relation to total height from 30 per cent among the Cochin Chinese through 33 per cent in the French to 35 per cent in certain Negro tribes.

(*b*) *Mean height of sternal notch.*—The mean height of sternal notch for white troops as shown in Table LXXXV is 141.18 centimeters, which is 82.09 per cent of the mean height (171.99); that is to say, the height of the man from the floor to the sternal notch constitutes over four-fifths of the total stature. Neck and head constitute something less than one-fifth. The relation between sternal notch and total stature, however, is far from constant. Thus in Table LXXXV there are 16 cases of men with a height of, say, 182 centimeters and sternal notch of 138. In these cases the sternal notch height was 75.8 per cent of the total stature. In 27 cases men 166 centimeters tall had a height of sternal notch of 148 centimeters, or 89.2 per cent of the total stature.[a]

(*c*) *Comparison of eight European races.*—The absolute and proportional distributions of sternal notch in eight European races are given in Table 75. A summary table is given in Table 74.

TABLE 74.—*Absolute and relative height of sternal notch in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute height of sternal notch.	Relative height of sternal notch.
		Centimeters.	*Per cent.*
Irish	6,173	142.28	83.03
Scotch	2,066	141.53	82.03
German	7,033	141.19	82.07
English	4,176	140.87	81.86
Polish	2,403	139.15	82.14
French	1,456	137.88	81.78
Hebrew	1,688	136.93	82.04
Italian	3,509	135.37	81.95

From this table it appears that the Irish have relatively the highest sternal notch, whereas, on the other hand, the French have relatively the lowest sternal notch and proportionately the longest head and neck. The English have the greatest variability in respect to the height of the sternal notch, just as they have in many other physical characters. They are greater in degree of variability than the Irish, Scotch, and German. Italians show the least variability, followed by the Polish, Hebrew, and French. Thus the distributions of the relative height of sternal notch and of variability are somewhat irregular in the races of Europe, one outstanding feature being the high sternal notch with the short head and neck among the Irish.

[a] There are numbers of obvious errors in recording the height of sternal notch. These are shown by certain irregularities at the extremes of the table. The table as obtained by the tabulators is printed unchanged. It is believed that the few errors will not greatly modify the results.

TABLE 75.—*Comparative frequency distribution of height of sternal notch in each of eight European races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Sternal notch, in centimeters.																				
		20–21	22–23	24–25	26–27	28–29	30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60 and over.
English	4,176	3	4	9	26	39	139	179	337	431	517	584	565	527	326	192	145	82	31	26	11	3
Scotch	2,066		1	6	5	16	48	102	125	186	237	323	267	242	213	124	86	53	15	10	5	2
Irish	6,173	29	1	5	12	32	86	180	313	516	711	827	939	796	666	479	272	144	85	48	25	7
German	7,033	3	9	10	22	66	192	294	511	708	877	1,017	961	861	565	415	255	146	67	26	24	4
French	1,456		3	13	30	55	92	120	192	182	203	189	140	118	59	31	11	11	5	1	1	
Italian	3,509	8	26	56	129	226	392	457	535	533	405	297	212	114	63	36	12	4	2	1	1	
Polish	2,403	1	4	11	21	43	95	164	265	320	344	342	305	213	138	66	30	26	11	2	1	1
Hebrew	1,688	2	3	17	33	77	133	200	226	253	240	178	123	88	57	30	16	6	2	2	2	
Number measured	28,504	46	51	127	278	554	1,177	1,696	2,504	3,129	3,534	3,757	3,512	2,959	2,087	1,373	827	472	218	116	70	17
Not measured	166																					
Total	28,670																					

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Sternal notch, in centimeters.																					Total.
		20–21	22–23	24–25	26–27	28–29	30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60 and over.	
English	4,176	0.72	0.96	2.16	6.23	9.34	33.29	42.87	80.70	103.21	123.80	139.85	135.30	126.20	78.06	45.98	34.72	19.64	7.42	6.23	2.63	0.72	1,000
Scotch	2,066		.48	2.90	2.42	7.75	23.24	49.38	60.51	90.03	114.72	156.34	129.24	117.14	103.10	60.02	41.63	25.65	7.26	4.84	2.42	.97	1,000
Irish	6,173	4.70	.16	.81	1.94	5.18	13.93	29.16	50.71	83.59	115.18	133.97	152.14	128.95	107.89	77.60	44.06	23.33	13.77	7.78	4.05	1.13	1,000
German	7,033	.43	1.28	1.42	3.13	9.38	27.30	41.80	72.66	100.67	124.70	144.60	136.64	122.42	80.34	59.01	36.26	20.76	9.53	3.70	3.41	.57	1,000
French	1,456		2.06	8.93	20.61	37.78	63.18	82.42	131.87	125.00	139.43	129.81	96.16	81.05	40.52	21.29	7.56	7.56	3.43	.69	.69		1,000
Italian	3,509	2.28	7.41	15.96	36.76	64.41	111.71	130.24	152.46	151.90	115.42	84.64	60.42	32.49	17.95	10.26	3.42	1.14	.57	.29	.29		1,000
Polish	2,403	.42	1.66	4.58	8.74	17.90	39.53	68.25	110.28	133.17	143.15	142.36	126.92	88.63	57.43	27.47	12.48	10.82	4.58	.83	.42	.42	1,000
Hebrew	1,688	1.18	1.78	10.07	19.55	45.62	78.79	118.48	133.89	149.88	142.18	105.45	72.87	52.13	33.77	17.77	9.48	3.55	1.18	1.18	1.18		1,000
Number measured	28,504	1.61	1.79	4.46	9.75	19.44	41.30	59.50	87.85	109.77	123.98	131.81	123.21	103.81	73.22	48.17	29.03	16.56	7.65	4.07	2.46	.60	1,000
Not measured	166																						
Total	28,670																						

(*d*) *Comparison of color races.*—For the Negro troops (Table LXXXIX) the mean height of sternal notch is 142.39 centimeters, which is 82.8 per cent of the total stature. The relative height of the sternal notch is therefore greater in Negroes than in whites, indicating that they have a shorter neck and head, but not as short as the Irish.

A comparison of the height of sternal notch in various color races is given in Table 107. The results of this comparison with the measurements of white and Negro troops are given in the following table:

TABLE 76.—*Absolute and relative height of sternal notch in five color races, demobilization, 1919.*

Race.	Number measured.	Mean measure.	Relative sternal notch.
		Centimeters.	*Per cent.*
White	96,439	141.18	82.09
Negro	6,454	142.39	82.80
Chinese	22	140.86	82.32
Japanese	32	140.44	82.16
Indian	107	140.97	82.19

The relative height of sternal notch is seen to be slightly greater in Negro than in white troops. In the Indian and Oriental races the relative height of sternal notch is intermediate between that of white and Negro.

4. HEIGHT OF PUBIC ARCH.

(*a*) *General discussion.*—This is the vertical distance from the floor to the upper margin of the pelvis at the symphysis of the pubic bones. It is measured by means of an anthropometer of which the movable arm is raised to the required level. The line is sometimes difficult to find, especially in the fat subject, but practically it is readily established, sometimes by following down the front margin of the pelvis from the more lateral position, but also through the practical point that it is the uppermost margin of resistance of the pelvic bone in the middle front line, about 25–30 millimeters above the root of the penis.

The pubic height is important because it is almost exactly (perhaps 35 millimeters below) the level of the center of the acetabulum or the axis of the hinge of the femur. Its height is therefore the length of the physiological leg or the line of rotation of the leg; a matter of prime importance in determining the length of step that requires the least effort. Practically, troops march with less fatigue if soldiers with the same physiological length of leg be grouped in one company or platoon.

Pubic height is also important because it has been nearly universally obtained in the measurement of young men, largely through the influence of Dr. Dudley A. Sargent, director of the Harvard Gymnasium. The height of the pubic arch has been found by Dr. Sargent to range in college men, 16 to 24 years of age, from about 76 centimeters to 99 centimeters and from 43.16 to 56.5 per cent of the stature. The ratio of pubic height to total stature is about 50 per cent. According to the table of Martin [5] (1914, p. 256, made up from various sources) it is in English males about 49.9 per cent; Laplanders, 50; Poles, 50.7; Belgians, 50.7; Cossacks, 51.4; French, 52.2; of Asiatic peoples the inhabitants of the Samoyedes Peninsula of Siberia have a relative pubic height of 48.6, the lowest of all races measured. In the Japanese this proportion is 49; Ainos, 49.9; Mongolians, 50.3. In certain African tribes the relative pubic height varies from 49.8 to 52.9, the latter relation being found in the Bushmen and being the highest proportion given. This indicates a relatively extraordinarily long-legged race.

The pubic height was determined by Gould [2] for 1,013 veterans of the Civil War and found to be 33.26 inches, or 84.48 centimeters, slightly less than the average pubic height found by Dr. Sargent for Harvard University students.

The medical importance of pubic height depends upon the medical significance of long legs and short trunk. As is well known, in certain bone-aplasias and defects of secretions of internal glands the legs are relatively short, as in achondroplastic dwarfs and in cretins. While in different normal families the length of leg (as indicated by pubic height) varies, still this possibly may be a measure of the differences in activities of the internally secreting glands which regulate the growth of the legs.

(b) *Mean pubic height.*—In 91,365 white troops measured at demobilization the height of pubic arch is 86.8 centimeters, which is slightly greater than for Harvard men, owing to the fact that the Harvard men averaged much younger. The relative pubic height is 50.47 per cent of stature.

(c) *Standard deviation of height of pubic arch.*—The standard deviation of pubic height for white troops is, as shown in Table LXXXVI, 5.05 centimeters. The coefficient of variation of height of pubic arch is obtained by dividing this standard deviation of 5.05 by the mean pubic height of 86.82. The result is 5.817 per cent, neither a high nor a low coefficient.

(d) *Comparison of eight European races.*—In the eight European races the mean height of the pubic arch is as indicated in the following table:

TABLE 77.—*Absolute and relative height of pubic arch in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute pubic height.	Relative pubic height.
		Centimeters.	*Per cent.*
Scotch	1,976	87.30	50.60
English	4,051	87.19	50.67
German	6,688	86.63	50.35
Irish	5,972	86.55	50.51
French	1,393	85.80	50.89
Polish	2,279	85.27	50.33
Hebrew	1,650	83.94	50.29
Italian	3,390	82.81	50.13

Our series confirms the results obtained by others, that the French are relatively the longest legged of the European races; the English are second in this respect, followed by the Scotch and Irish. The lowest relative pubic arch is found among the Italians, followed by the Hebrews, Poles, and Germans. We see then, again, that the Nordics and the French have the longest legs, and the peoples of southern and eastern Europe have relatively short legs. Here we have evidence of the relatively greater contrast in this respect between the primates and the Nordics on the one hand, than between primates and the southern European races on the other.

TABLE 78.—*Comparative frequency distribution of height of pubic arch in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Pubic height, in centimeters.																	
		70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87	88-89	90-91	92-93	94-95	96-97	98-99	100-101	102-103	104-105
English	4,051	12	16	25	58	112	256	396	569	690	649	560	306	215	93	58	32	3	1
Scotch	1,976	5	8	15	33	47	99	227	259	344	305	260	163	106	58	26	18	2	1
Irish	5,972	19	31	54	87	189	441	716	965	1,029	915	605	450	243	119	69	35	2	3
German	6,688	35	57	63	116	200	443	734	1,045	1,107	1,070	758	509	313	129	76	23	6	4
French	1,393	5	9	8	38	73	129	186	245	213	182	131	76	40	34	20	4		
Italian	3,390	19	51	116	220	376	569	613	518	385	274	121	66	30	21	9	2		
Polish	2,279	8	17	28	50	119	214	347	421	389	301	197	90	55	25	12	4		
Hebrew	1,650	8	14	38	86	125	210	284	294	244	168	97	33	23	14	10	2	1	1
Number measured	27,399	111	203	347	688	1,241	2,361	3,503	4,316	4,401	3,864	2,729	1,693	1,025	493	280	120	14	10
Not measured	1,271																		
Total	28,670																		

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Pubic height, in centimeters.																		Total.
		70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87	88-89	90-91	92-93	94-95	96-97	98-99	100-101	102-103	104-105	
English	4,051	2.96	3.95	6.17	14.32	27.65	63.20	97.76	140.46	170.33	160.21	138.24	75.54	53.07	22.96	14.32	7.90	0.74	0.25	1,000
Scotch	1,976	2.53	4.05	7.59	16.70	23.79	50.10	114.88	131.07	174.10	154.35	131.58	82.49	53.64	29.35	13.16	9.11	1.01	.51	1,000
Irish	5,972	3.18	5.19	9.04	14.57	31.65	73.85	119.89	161.59	172.30	153.22	101.31	75.36	40.69	19.93	11.55	5.86	.34	.50	1,000
German	6,688	5.23	8.52	9.42	17.35	29.90	66.24	109.75	156.25	165.52	160.00	113.34	76.11	46.80	19.29	11.36	3.44	.90	.60	1,000
French	1,393	3.59	6.46	5.74	27.28	52.41	92.61	133.53	175.88	152.91	130.65	94.04	54.56	28.72	24.41	14.36	2.87			1,000
Italian	3,390	5.60	15.04	34.22	64.90	110.91	167.85	180.82	152.80	113.57	80.82	35.69	19.47	8.85	6.20	2.65	2.59			1,000
Polish	2,279	3.51	7.46	12.29	21.94	52.21	93.90	152.26	184.73	170.69	132.07	86.44	39.49	24.13	10.97	5.27	1.76			1,000
Hebrew	1,650	4.85	8.49	23.03	52.12	75.76	127.28	172.13	178.20	147.88	101.82	58.79	20.00	13.94	8.49	6.06	1.21	.44	.44	1,000
Number measured	27,399	4.05	7.41	12.66	25.11	45.30	86.18	127.85	157.53	160.63	141.03	99.61	61.80	37.41	18.00	10.22	4.38	.51	.37	1,000
Not measured	1,271																			
Total	28,670																			

(*e*) *Comparison of color races.*—In 6,220 Negro troops, the height of pubic arch is 89.4 In view of the identical average height of white and colored, this shows that the Negro men had, on the average, 2.6 centimeters, or about 3 per cent, higher pubic arch than the white men.

The standard deviation of pubic height for Negro troops is 5.27 centimeters, which is a greater variability than that shown by the whites (5.05); a greater variability which we find in their other dimensions and which is to be explained in part by the greater mean pubic height, but not entirely; and suggests that the mulattoes have had a parentage from diverse races of whites. The coefficient of variability, which is obtained by dividing the standard deviation of the pubic height by the mean pubic height, is in the case of colored troops 5.894 and for the whites 5.817. The relative height of pubic arch is in the case of white troops 50.5 per cent; in the case of colored, 52.01 per cent of the total stature. The Negro group is a long-legged one.

TABLE 79.—*Absolute and relative height of pubic arch in five color races, demobilization, 1919.*

Race.	Number measured.	Absolute pubic height.	Relative pubic height.
		Centimeters.	*Per cent.*
White	91,365	86.82	50.48
Negro (and mulatto)	6,220	89.42	52.02
Japanese	32	88.31	51.66
Indian	105	86.35	50.35
Chinese	21	86.12	50.33

The Chinese were found to be the shortest legged of the five races and the Indians to resemble them closely. The Japanese are intermediate between the whites and Negro.

5. NECK CIRCUMFERENCE.

(*a*) *General discussion.*—Instructions for taking measurements stated that the circumference of the neck was to be taken at the level of the laryngeal prominence. The importance of this measurement is partly medical, since any enlargement of the thyroid gland (as in goiter) would be made manifest by any marked deviation of the neck circumference from the normal. Its military importance is merely in relation to the wearing of the military collar. Physical examination standards repeatedly referred to the necessity of rejecting recruits with enlargement of the neck glands sufficient to interfere with the wearing of the military collar.

(*b*) *Mean neck circumference.*—Table LXXVIII gives the correlation of neck circumference and chest circumference. According to this table the mean neck circumference for white troops is 35.98 centimeters. Table CV gives the association between the different blouse groups based on chest circumference, sitting height, and neck circumference in the case of white troops. This table shows an extraordinary scattering of large sizes among the small men. The possibility that some of them are due to errors in recording at camps can not be overlooked.

(*c*) *Standard deviation of neck circumference.*—The standard deviation of neck circumference for white troops is given in Table LXXVIII as 1.8 centimeters. Dividing this by the mean neck circumference we get the coefficient of variation of 5.003 per cent—a low median one.

(*d*) *Comparison of eight European races.*—The data for the neck circumference of the eight European races was not tabulated.

(*e*) *Comparison of color races.*—The relation between the neck circumference of white and Negro races is given in the following table:

TABLE 80.—*Absolute and relative neck circumference of white and Negro troops, demobilization, 1919.*

Race.	Number measured.	Mean measurement.	Relative neck circumference.
		Centimeters.	*Per cent.*
White	95,271	35.98	20.9
Negro (and mulatto)	6,280	36.37	21.2

The neck circumference in Negro troops exceeds that of the white troops by nearly 4 millimeters, or over 1 per cent.

6. BREADTH OF SHOULDER.

(*a*) *General discussion.*—This is the horizontal transverse distance between the deltoid muscles of the right and left arms at a distance of about four or five centimeters below the acromial processes, or at about the greatest thickening of the deltoid. This measurement was taken in preference to the distance between the acromial processes because of its greater significance in the fitting of uniforms and because it gives a better index of the physiological breadth of shoulder.

This dimension has a certain medical importance inasmuch as the breadth of shoulder is partly dependent upon the breadth of the chest and partly upon the muscular development of the upper part of the arms. Its military importance is probably slight.

The anthropological significance of the breadth of shoulder is considerable, though it must be admitted that anthropologists have more frequently used the distance between the acromial processes than between deltoid muscles as a measure of shoulder breadth. This is partly because this measurement can also be made upon the skeleton. The different measurements of the shoulder breadth as given by Martin,[5] (p. 141) may be translated as follows:

35. Breadth between the acromia.—To be taken with the anthropometer or "Stangelzirkel" (rod calipers). Care must be taken that the subject stretches the shoulders; that is, does not droop forward, making the measurement too small. One feels the points with the index fingers laid at the apices of the arms of the calipers, direct measurement. Horizontal distance between the two tubercula majora of the humeri; inexact measurement, since the tubercula can rarely be felt through the deltoid muscles. Maximum shoulder breadth (Grosste Schúlterbreite) (diamétre bideltoid ou bihumerale), horizontal distance between the two largest projections of the deltoid muscle. Rod caliper, the instrument is not to be firmly pressed in. A very inexact measurement.

In the measurements taken under the direction of Gould [2] (pp. 239, 260, and 261) on Civil War soldiers at demobilization it was originally provided merely that the breadth of shoulders should be obtained, "whereas it was especially provided in the schedule for the later series that this measure should be taken between the tips of the acromial processes." There were 2,072 measurements of the full breadth of shoulders and 8,796 which gave the distance between the tips of the acromial processes. The mean of the full breadth of shoulder is about 16.35 inches (41.53 centimeters) and ranges between 13 and 19 inches (33 to 48 centimeters). Gould finds that the mean distance between the tips of the acromial processes is 12.73 inches (32.33 centimeters), the individual cases ranging between 9½ and 16½ inches (24.13 to 41.91 centimeters). "Among natives of this country, the mean value is decidedly highest for natives of Kentucky and Tennessee, being 13.51 inches (34.3 centimeters)." Gould notes that "the identification of this apophysis is not easy, and some of our examiners seem to have succeeded here but ill."

As Martin remarks, the breadth between the acromial processes in comparison to trunk length is greater in man then in any other mammal. A great shoulder breadth is also found among the anthropoid apes, in which the shoulders are extraordinarily developed on account of their arboreal or semiarboreal life. Thus in relation to the length of the trunk the shoulder breadth in the orang outang is 59.8; chimpanzee, 54.6; hylobates, 55.5; among Parisians, 77; Germans of Bavaria, 75.3; inhabitants of the Admiral Islands, 71.1; Polish Jews, 66.7, a very low rate among humans. The breadth of shoulder (acromial interval) is sometimes expressed in relation to total stature. Thus expressed, the shoulder breadth is found to be very high among the Eskimos, 24.3; Colorado Indians, 22.5. Among Europeans the relative shoulder breadth is given as follows: Belgians, 23.4; Bavarians, 23; Polish Jews, 22.1; French, about 21; Japanese, about 24; Chinese, 22–24. The absolute breadth of shoulders is stated to increase up to 50 years of life. Thus it is clearly very responsive to activity of the arms and shoulders. The breadth of shoulders as measured between the deltoid muscles also varies much with the general condition and robustness of the body.

(*b*) *Mean shoulder breadth.*—The mean shoulder breadth of the white troops is, as shown in Table CI, 41.81 centimeters. The relative shoulder width is 24.31 per cent. Thus the mean shoulder width is 0.28 centimeter greater than that of Civil War veterans at demobilization. The ratio is greater than that of the European races given above because the breadth of shoulder is measured between different points.

(*c*) *Standard deviation of shoulder breadth.*—The standard deviation of shoulder width of white troops, as shown in Table CI, is 2.408 ± 0.0037 centimeter. The coefficient of variation is then 5.7601 per cent, a rather high coefficient of variation. The mean shoulder width of Negro troops is, as shown in Table CIX, 42.89 centimeters. The standard deviation is 2.154 centimeters. We see, therefore, that the mean shoulder width of the colored troops is over 1 centimeter more than that of the white troops and the index of variability is relatively considerably less. The coefficient of variation for the colored troops is 5.013 per cent, or much less than for white troops.

(*d*) *Comparison of eight European races.*—Table 82 gives the absolute and proportional frequency of occurrence of shoulder breadth in each of the eight races. In Table 81 the third column from the left gives the mean shoulder breadth of the races. It will be recalled that this is the maximum shoulder width and not the space between the acromial processes. Hence the condition of the man plays a considerable rôle in determining the shoulder width. The maximum mean shoulder width, 42.24 centimeters, was found among the Poles; next among the Germans, then follow Scotch, English, and Italians rather close together. The minimum shoulder width, 40.41 centimeters, is found among the French; somewhat greater is the shoulder width of Hebrews and Irish.

Gould found the mean of measurements of "maximum breadth of shoulders" to be about 16.35 inches (41.53 centimeters), which is within 3 millimeters of the mean shoulder width measured in the troops of 1919. In comparison with the figures of 1919, transmuting inches to centimeters, the breadth of shoulders of Civil War veterans from England was 41.17 centimeters, instead of 41.69, showing an increase in the later series. The Scotch gave 42.27 centimeters instead of 41.70, showing a marked decrease half a century later. The Irish of 1866 were 41.83 centimeters, which, contrasted with the 41.43 of 1919, shows something of a decrease in half a century. Veterans of German origin in 1866 gave 41.76 centimeters as compared with the World War data of 42.19, which shows an increase half a century later. How much of this difference is significant of slightly different racial subgroups included in the two sets of measurements, how much to conditions of life, how much to errors of random sampling, can not be stated. It is probable that no important changes in this dimension have occurred in any race during the half century.

The third column from the right of Table 81 gives the standard deviation of shoulder width for the eight races. The greatest deviation is found among the Scotch, 2.11; the lowest among the French, 1.10.

The last column at the right gives the ratio of mean shoulder width to mean stature for each of the races. This column shows that the greatest relative shoulder width occurs among the Italians, 25.21; next among the Poles, and then the Hebrews, followed by the Germans. The smallest relative width is found among the French, 23.97, followed in increasing proportion by the Scotch, Irish, and English. Thus, in general, the Nordics have a smaller shoulder width than the races of southern Europe. If we regard the Nordics as the most aberrant or extremely developed of the human races, then we may say that evolution has been in the direction of diminished shoulder width. This reduction, however, it is to be pointed out, is largely due to the circumstance that the Scotch and English are of taller build than the Italians and Poles and consequently part of their proportional inferiority of shoulder width is due to proportionately larger division. For a comparison we may take the proportions of Gould, which are for the English, 24.6; Scotch, 24.6; Irish, 24.8; French, etc., 25.5; Germans, 25.

TABLE 81.—*Absolute and relative shoulder breadth with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute shoulder breadth.	Standard deviation.	Coefficient of variation.	Relative shoulder breadth.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	4,088	41.69	2.09	5.013	24.23
Scotch	2,011	41.70	2.11	5.060	24.17
Irish	5,988	41.43	2.10	5.069	24.18
German	6,885	42.19	2.06	4.883	24.52
French	1,419	40.41	1.10	2.722	23.97
Italian	3,458	41.64	2.05	4.923	25.21
Polish	2,346	42.24	1.98	4.688	24.93
Hebrew	1,653	41.42	2.02	4.877	24.82

TABLE 82.—*Comparative frequency distribution of shoulder breadth in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Shoulder breadth, in centimeters.											
		36	37	38	39	40	41	42	43	44	45	46	47
English	4,088	28	49	160	354	565	779	759	609	403	211	131	40
Scotch	2,011	18	36	74	156	280	366	388	303	198	113	59	20
Irish	5,988	40	130	322	572	913	1,143	1,082	810	537	264	128	47
German	6,885	21	56	167	375	775	1,193	1,317	1,183	865	541	266	126
French	1,419	1	7	37	222	505	441	171	28	6	1	......	......
Italian	3,458	19	46	146	289	498	650	676	506	338	171	87	32
Polish	2,346	5	12	45	125	260	396	445	464	290	180	89	35
Hebrew	1,653	7	31	83	149	262	359	280	231	139	72	25	15
Number measured	27,848	139	367	1,034	2,242	4,058	5,327	5,118	4,134	2,776	1,553	785	315
Not measured	822	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Shoulder breadth, in centimeters.												
		36	37	38	39	40	41	42	43	44	45	46	47	Total.
English	4,088	6.85	11.99	39.14	86.60	138.20	190.56	185.66	148.97	98.58	51.61	32.05	9.79	1,000
Scotch	2,011	8.95	17.90	36.80	77.57	139.23	182.00	192.94	150.67	98.46	56.19	29.34	9.95	1,000
Irish	5,988	6.68	21.71	53.78	95.53	152.47	190.88	180.70	135.27	89.68	44.09	21.38	7.85	1,000
German	6,885	3.05	8.13	24.26	54.47	112.56	173.28	191.30	171.83	125.64	78.58	38.64	18.30	1,000
French	1,419	.70	4.93	26.07	156.45	355.88	310.78	120.51	19.73	4.23	.70	......	......	1,000
Italian	3,458	5.49	13.30	42.22	83.57	144.01	187.97	195.49	146.33	97.75	49.45	25.16	9.25	1,000
Polish	2,346	2.13	5.12	19.18	53.28	110.83	168.80	189.69	197.79	123.61	76.73	37.94	14.92	1,000
Hebrew	1,653	4.23	18.75	50.21	90.14	158.50	217.20	169.39	139.75	84.09	43.56	15.13	9.08	1,000
Number measured	27,848	4.99	13.18	37.13	80.51	145.72	191.30	183.78	148.45	99.69	55.77	28.19	11.31	1,000
Not measured	822	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......

(*e*) *Comparison of color races.*—The following table shows the absolute and relative shoulder breadth in the five color races, demobilization, 1919:

TABLE 83.—*Absolute and relative shoulder breadth in five color races, demobilization, 1919.*

Race.	Number measured.	Mean measurement.	Relative shoulder width.
		Centimeters.	*Per cent.*
White	95,167	41.81	24.3
Negro (and mulatto)	6,289	42.89	24.9
Chinese	21	42.67	24.9
Japanese	31	42.00	24.6
Indian	104	42.58	24.8

From this table it appears that, as already stated, the Negro troops have a shoulder width that exceeds the whites on the average by about 1 centimeter. The Chinese and Japanese and Indians resemble the Negro troops more than the whites in this respect. The relative shoulder width—that is, shoulder width divided by stature—is also greater in Negro, orientals, and Indians than it is in the whites.

7. TRANSVERSE DIAMETER OF THE CHEST.

(*a*) *General discussion.*—This measurement was taken at the level of the nipples by means of sliding wooden calipers. The arms of the calipers were held approximately perpendicularly to the axis of the thorax at this level. The measurers were instructed to permit the movable arm of the calipers to remain in contact with the chest during expiration and inspiration and to take the middle distance between the extremes.

This dimension accords very closely with Martin's No. 6 (p. 142): "Transversaler Brustdurchmesser (Frontal-Brustweite; largue de la poitrine) direct measurement. Horizontal distance between the two most protuberant ribs at the level of the mesosternale."

This measurement has a certain medical importance, especially when used in connection with the measurement of the antero-posterior chest diameter. The ratio of the transverse to the antero-posterior diameter gives the thoracic index (Thorakalindex) of Martin [5] (p. 275). This index tends to increase with age; a small one is indicative of an infantile condition of development. Extreme conditions, however, produce the chicken- or pigeon-breasted form, which is a malformation not associated with physical vigor. On the other hand, an extremely low thoracic index (flat chest) should be a warning to observing physicians to look for pulmonary tuberculosis.

The military significance of the chest diameters is largely confined to its medico-military aspect and to its relation to uniforms. In general, however, uniforms are fitted by the chest circumference rather than by the diameter of the chest. The diameters of the chest have a certain anthropological significance. Thus, the transverse diameter for Navajo Indians is given at 27.9 centimeters; for French (with a prevailingly shorter stature than Indians), 26.9. The thoracic index for Hova Indians is 143.5; for Bugu Negroes, 124; for African Negroes in general, 138.

(*b*) *Mean transverse chest diameter.*—The mean transverse chest diameter of 96,583 white troops is, as shown in Table LXXX, 29.02 centimeters. This is a transverse diameter over 1 centimeter greater than that given for the Navajo Indians and over 2 centimeters greater than that of the French. The relative mean transverse chest diameter is 16.87 per cent of the total stature. In the case of Negro troops the mean transverse chest diameter is 29.05, or practically the same as that of white troops. The relative transverse diameter is, therefore, apparently the same in the two races.

(*c*) *Standard deviation of transverse chest diameter.*—The standard deviation of transverse chest diameter is for the white troops 2.40 centimeters. The coefficient of variation is 8.27 per cent. This is a very high coefficient, and indicates that the diameter of the chest is a very variable dimension. In the case of Negro troops the corresponding coefficient is 7.78 per cent, indicating a slightly smaller variability in the Negro than in the white troops.

As is shown in Tables LXXX and XCVI the standard deviation of the transverse diameter of the chest is markedly greater than that of the antero-posterior diameter. This matter will be discussed when we come to consider the latter dimension.

(*d*) *Comparison of eight European races.*—Table 86 (summarized in Table 85) gives for each of eight European races the absolute and relative proportional frequency of occurrence of the different transverse chest diameter classes. The third column from the left of Table 85 gives the mean transverse chest diameter for each of the races. The largest diameter, 29.22 centimeters, is found among the Poles, next larger among the Germans, next among the Scotch and English. The smallest transverse chest diameter is found among the Hebrews, followed in ascending order by the French, Italians, and Irish. It is noteworthy that the transverse chest diameter of the Irish stands fifth in the list, whereas the chest circumference of the Irish stands fourth in that list, the fifth place in chest circumference being taken by the Scotch. This indicates either that the Scotch have a relatively broad chest or that the Irish have an exceptionally narrow one. The relative variability of transverse chest diameters is given in the fourth column from the right. We see that the Scotch and French show the highest standard deviation, 2.35, followed by the Germans and Hebrews. The smallest standard deviation, 2.17, is found among the Italians, followed by the English, Polish, and Irish. The third column from the right hand in Table 85 gives the transverse chest diameter in relation to height. From this column we see that the Italians have the greatest relative chest diameter, 17.41; these are followed by the Poles, French, Hebrews, and Germans. The smallest relative transverse chest diameter, 16.78, is found among the English, followed by the Irish and Scotch. Thus, in general, in transverse chest diameter the Nordics are relatively inferior to the Mediterranean races.

8. ANTERO-POSTERIOR DIAMETER OF THE CHEST, AND THORACIC INDEX.

(*a*) *General discussion.*—The antero-posterior diameter of the chest was taken on the same plane as the transverse diameter, but with the calipers placed antero-posteriorly. The movable arm of the calipers lay over the chest at about the level of the nipples; the fixed arm of the calipers lay on the muscles of the back, near the top of the scapulæ. The movable arm was kept in contact with the wall of the chest during its rise and fall in respiration, and the middle reading between the extreme was regarded as the antero-posterior diameter of the chest.

The greatest interest of the antero-posterior diameter of the chest lies in relation of the transverse diameter. The index of the thorax is obtained by dividing the transverse diameter by the antero-posterior. In the case of various races, as tabulated by Martin [5] (p. 277), the thoracic index is as follows:

TABLE 84.—*Thoracic index of various races.*

	Thoracic index.
Hova Indians	143.5
Navajo Indians	137.5
French	138.6
African Negro	138.0
Bugu Negro	124.0

The antero-posterior diameter varies in different races partly, of course, in relation to the total stature of the individual. In the case of the Navajo Indians this diameter is given as 216 millimeters on the average; in the case of the French 194 millimeters.

A small antero-posterior diameter in relation to the transverse diameter may indicate pulmonary tuberculosis. Its military significance is probably confined to its medico-military significance.

(*b*) *Mean antero-posterior chest diameter.*—The mean antero-posterior chest diameter of white troops is, as shown in Table LXXX, 21.58 centimeters. This is markedly less than the transverse chest diameter. The ratio of the larger to the smaller is 134.48, a ratio of the thoracic index which is less than that of the French as given above. For Negro troops the mean antero-posterior chest diameter is 21.21, or slightly less than that of the whites, and the index of 136.96, a ratio still below that of the French given above, though greater than that of the whites. It has been stated by Papillault [23] that the Negro has a somewhat rounder type of thorax than the European, hence has a large antero-posterior diameter and a relatively small thoracic index. White troops at demobilization had strikingly broad and shallow chests.

(*c*) *Standard deviation of antero-posterior chest diameter.*—The standard deviation of the antero-posterior diameter of the chest is, as shown in Table LXXX, 1.87 centimeters for white troops, and, as shown in Table XCVI, 1.74 centimeters for colored troops. The corresponding coefficients of variation are 8.665 for white troops and 8.204 for colored. Hence the variability of the antero-posterior chest diameter for colored troops is markedly less than that of the whites.

(*d*) *Comparison of eight European races.*—Table 87 gives the absolute and proportional frequencies of occurrence in the different classes of antero-posterior chest diameter of the eight European races, summarized in Table 85.

The last column on the right in Table 85 gives the mean antero-posterior chest diameter for these races. From this column it appears that the largest antero-posterior chest diameter, 21.90, is found among the Polish, as was also the case with the transverse chest diameter. The next largest is found among the

Germans, as was also the case with the transverse chest diameter. Third come the Irish, who were fifth in transverse chest diameter, and fourth the Scotch, who were third in transverse chest diameter. Fifth in order are the Italians, who were sixth in transverse chest diameter. Sixth in order of antero-posterior diameter come the English, who were fourth in transverse chest diameter. Seventh are the Hebrews and eighth the French. The French and Hebrews have exchanged places in antero-posterior chest diameter as compared with transverse. It will be interesting to compare the thoracic index to be obtained by dividing the transverse diameter × 100 by the antero-posterior. The results are expressed in per cents in next to the right-hand column of Table 85. The column of transverse diameters divided by antero-posterior shows that the Irish have the smallest thoracic index (index 133.22) and the English the greatest (134.59). The order from the smallest to the greatest is as follows: Irish, Hebrew, Polish, French, German, Italian, Scotch, and English. Thus in general, excluding the Irish (who are only in part Nordic), and including the Polish (who are Nordic to a considerable degree), it appears that the Nordic races are characterized by greatest chest index. Comparing the variability of the antero-posterior diameters, it appears that the standard deviation is greatest, 1.76, among the English, followed by the Scotch, German, and Hebrew. The standard deviation is least, 1.66, among the Italians and Polish, followed by the French and Irish.

TABLE 85.—*Absolute and relative transverse diameter of chest with the standard deviation; also antero-posterior diameter of the chest with the thoracic index multiplied by 1,000 (transverse diameter divided by the antero-posterior diameter), in eight races, demobilization, 1919.*

Race.	Number measured.	Transverse diameter of chest.	Standard deviation.	Relative transverse diameter.	Thoracic index ×100.	Antero posterior diameter of chest.
		Centimeters.	*Centimeters.*	*Per cent.*		*Centimeters.*
English	4,192	28.87	2.22	16.78	134.59	21.45
Scotch	2,057	29.01	2.35	16.81	134.43	21.58
Irish	6,135	28.77	2.30	16.79	133.19	21.60
German	7,074	29.12	2.32	16.93	133.64	21.79
French	1,433	28.58	2.35	16.95	133.61	21.39
Italian	3,514	28.76	2.17	17.41	133.89	21.48
Polish	2,406	29.22	2.26	17.25	133.49	21.90
Hebrew	1,690	28.25	2.31	16.92	133.22	21.42

TABLE 86.—*Comparative frequency distribution of transverse diameter of chest in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Chest transverse, in centimeters.																				
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
English	4,192	5	15	17	11	28	110	295	570	788	854	669	394	235	102	50	20	13	6	4	3	3
Scotch	2,057	2	8	10	11	20	49	140	248	345	404	359	208	124	61	32	19	7	6	1	3	......
Irish	6,135	9	17	13	24	51	204	521	895	1,177	1,153	875	541	340	156	63	38	27	9	14	4	4
German	7,074	13	21	18	21	40	172	416	856	1,273	1,370	1,135	812	469	231	109	54	16	18	12	13	5
French	1,433	3	5	3	4	17	61	141	224	260	267	213	123	46	29	12	7	5	3	6	3	1
Italian	3,514	3	7	4	7	36	116	277	505	681	701	535	315	154	96	38	17	8	5	8	1	......
Polish	2,406	1	8	4	8	18	49	123	271	418	463	438	287	166	74	40	14	9	4	4	6	1
Hebrew	1,690	5	4	5	7	33	90	184	319	327	283	200	118	57	20	16	9	3	2	2	5	1
Number measured	28,501	41	85	74	93	243	851	2,097	3,888	5,269	5,495	4,424	2,798	1,591	769	360	178	88	53	51	38	15
Not measured	169	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Chest transverse, in centimeters.																					
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total.
English	4,192	1.19	3.58	4.06	2.62	6.68	26.24	70.38	135.97	187.98	203.72	159.60	93.99	56.06	24.33	11.93	4.77	3.10	1.43	0.95	0.72	0.72	1,000
Scotch	2,057	.97	3.89	4.86	5.35	9.72	23.82	68.07	120.56	167.73	196.41	174.53	101.12	60.29	29.66	15.56	9.24	3.40	2.92	.49	1.46	......	1,000
Irish	6,135	1.47	2.77	2.12	3.91	8.31	33.25	84.96	145.89	191.86	187.94	142.63	88.18	55.43	25.43	10.27	6.19	4.40	1.47	2.28	.65	.65	1,000
German	7,074	1.84	2.97	2.54	2.97	5.65	24.31	58.81	121.00	179.96	193.66	160.45	114.79	66.30	32.66	15.41	7.63	2.26	2.54	1.70	1.84	.71	1,000
French	1,433	2.09	3.49	2.09	2.79	11.86	42.57	98.40	156.32	181.42	186.32	148.64	85.84	32.10	20.24	8.37	4.88	3.49	2.09	4.19	2.09	.70	1,000
Italian	3,514	.85	1.99	1.14	1.99	10.25	33.01	78.82	143.71	193.79	199.49	152.25	89.64	43.82	27.32	10.81	4.84	2.28	1.42	2.28	.28	......	1,000
Polish	2,406	.42	3.33	1.66	3.33	7.48	20.37	51.12	112.63	173.73	192.44	182.05	119.29	69.00	30.76	16.63	5.82	3.74	1.66	1.66	2.49	.42	1,000
Hebrew	1,690	2.96	2.37	2.96	4.14	19.53	53.25	108.88	188.76	193.50	167.46	118.34	69.82	33.73	11.83	9.47	5.33	1.78	1.18	1.18	2.96	.59	1,000
Number measured	28,501	1.44	2.98	2.60	3.26	8.53	29.86	73.61	136.41	184.87	192.80	155.22	98.17	55.82	26.98	12.63	6.25	3.09	1.86	1.79	1.33	.53	1,000
Not measured	169	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

TABLE 87.—*Comparative frequency distribution of antero-posterior diameter of the chest in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Chest antero-posterior, in centimeters.														
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
English	4,189	4	25	99	345	730	1,054	930	560	264	98	32	19	12	12	5
Scotch	2,069	....	11	41	144	360	491	482	279	154	63	26	7	7	1	3
Irish	6,139	5	19	92	434	1,035	1,512	1,416	891	408	197	64	33	10	15	8
German	7,045	5	12	94	401	1,013	1,671	1,752	1,081	564	282	83	44	17	14	12
French	1,459	1	4	35	111	286	393	298	188	88	29	14	7	1	2	2
Italian	3,514	3	10	63	256	645	889	818	510	204	59	24	13	8	8	4
Polish	2,405	1	4	22	99	322	571	598	413	242	76	35	11	6	3	2
Hebrew	1,691	1	7	41	145	298	415	412	219	81	40	10	10	3	7	2
Number measured	28,511	20	92	487	1,935	4,689	6,996	6,706	4,141	2,005	844	288	144	64	62	38
Not measured	159	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Chest antero-posterior, in centimeters.															Total.
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
English	4,189	0.95	5.97	23.63	82.36	174.28	251.61	222.01	133.68	63.02	23.40	7.64	4.54	2.86	2.86	1.19	1,000
Scotch	2,069	....	5.32	19.82	69.60	174.00	237.30	232.97	134.85	74.43	30.45	12.57	3.38	3.38	.48	1.45	1,000
Irish	6,139	.81	3.10	14.99	70.70	168.60	246.30	230.65	145.15	66.46	32.09	10.43	5.38	1.63	2.44	1.30	1,000
German	7,045	.71	1.70	13.34	56.92	143.79	237.19	248.68	153.44	80.05	40.03	11.78	6.25	2.41	1.99	1.70	1,000
French	1,459	.69	2.74	23.99	76.08	196.01	269.36	204.25	128.85	60.32	19.88	9.60	4.80	.69	1.37	1.37	1,000
Italian	3,514	.85	2.85	17.93	72.85	183.54	253.00	232.79	145.12	58.05	16.79	6.83	3.70	2.28	2.28	1.14	1,000
Polish	2,405	.42	1.66	9.15	41.17	133.89	237.42	248.65	171.72	100.62	31.60	14.55	4.57	2.49	1.25	.83	1,000
Hebrew	1,691	.59	4.14	24.25	85.75	176.23	245.41	243.65	129.51	47.90	23.65	5.91	5.91	1.77	4.14	1.18	1,000
Number measured	28,511	.70	3.23	17.08	67.87	164.46	245.36	235.20	145.23	70.32	29.60	10.10	5.05	2.24	2.17	1.33	1,000
Not measured	159	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

9. WAIST CIRCUMFERENCE.

(*a*) *General discussion.*—The waist circumference was taken at the level of the umbilicus. The waist circumference in relation to stature is somewhat variable in different races. As given in Martin's table (p. 288), in different races of Africa it varies in the males from 43 to 49 per cent. In young men of the French race it is about 42 per cent.

(*b*) *Mean waist circumference.*—The mean waist circumference of 96,157 white troops, as shown in Table 103, is 77.87 centimeters. The relative waist circumference is 45.28 per cent. This is slightly larger than the relative waist circumference of young French males. The mean waist circumference of 6,445 colored troops is, as shown in Table 104, 77.83 centimeters, or practically the same as for whites. The relative circumference is, therefore, practically the same, since the stature of white and colored troops is practically equal.

(*c*) *Standard deviation of waist circumference.*—The standard deviation of waist circumference for white troops, as shown in Table LXXXI, is 6.00 centimeters while that for colored troops is 5.76. In view of the practical equality of the means, this indicates a greater variability of the waist circumference in white troops as compared with colored troops. This relation is brought out more clearly by the coefficients of variation which are, in the case of white troops, 7.705, and in the case of colored troops 7.40.

(*d*) *Comparison of eight European races.*—Table 89 gives the frequencies and proportional distributions in the different classes of waist circumference for each of the eight races. Table 88 gives in the fourth column from the right the average waist circumference of the different races. It appears from this column that the Germans have the largest waist circumference, 78.46 centimeters, the Polish second, Irish third, and English fourth. On the other hand, the Hebrews have the smallest average waist circumference, followed in order by the Italians, French, and Scotch. The Germans stand second in chest circumference and the Poles first, whereas the Germans stand first in waist circumference and the Poles second. It is clear that there is a relatively greater abdominal development in the Germans than in the Poles. The second column from the right gives the standard deviation as a measure of variability of the different races in respect to waist circumference. The standard deviation is highest, 6.26, among the Irish, next among the Hebrews, then the Germans and English. It is least among the Polish, 5.48, next higher among the French, Italians, and Scotch. The relation of waist circumference to stature is given in the right-hand column in the table. From this column it appears that in relation to stature the Italians have the largest waist circumference, 46.71; they are followed by the Poles, Hebrews, and French. On the other hand, the English have the smallest waist circumference in relation to stature, followed in ascending series by the Scotch, Irish, and Germans. Thus the Nordic race is characterized by small waist circumference as compared with the Mediterranean, Polish, and Hebrew.

TABLE 88.—*Absolute and relative waist circumference with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute waist circumference.	Standard deviation.	Coefficient of variation.	Relative waist circumference.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	4,195	76.69	6.09	7.941	44.57
Scotch	2,061	77.53	6.00	7.739	44.93
Irish	6,152	77.70	6.26	8.057	45.34
German	7,073	78.46	6.10	7.775	45.61
French	1,455	77.32	5.84	7.553	45.86
Italian	3,520	77.16	5.87	7.608	46.71
Polish	2,405	78.38	5.48	6.992	46.27
Hebrew	1,687	76.71	6.11	7.965	45.96

TABLE 89.—*Comparative frequency distribution of waist circumference in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Waist circumference, in centimeters.											
		50–63.	64–67.	68–71.	72–75.	76–79.	80–83.	84–87.	88–91.	92–95.	96–99.	100–103.	104 and over.
English	4,195	32	67	696	1,121	1,196	531	314	158	48	24	7	1
Scotch	2,061	10	34	233	533	589	359	178	81	26	16	1	1
Irish	6,152	31	119	650	1,570	1,756	1,110	513	225	94	51	20	13
German	7,073	42	98	533	1,609	2,031	1,517	727	320	113	56	19	8
French	1,455	9	27	150	388	452	239	111	52	17	7	1	2
Italian	3,520	17	73	400	1,004	952	626	275	108	40	15	9	1
Polish	2,405	10	19	169	535	720	587	233	94	27	9	2	......
Hebrew	1,687	7	50	240	489	439	251	125	52	21	8	1	4
Number measured	28,548	158	487	3,071	7,249	8,135	5,220	2,476	1,090	386	186	60	30
Not measured	122	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Waist circumference, in centimeters.												
		50–53.	64–67.	68–71.	72–75.	76–79.	80–83.	84–87.	88–91.	92–95.	96–99.	100–103.	104 and over.	Total.
English	4,195	7.63	15.97	165.91	267.21	285.10	126.58	74.85	37.66	11.44	5.72	1.67	0.24	1,000
Scotch	2,061	4.85	16.50	113.05	258.62	285.80	174.19	86.37	39.30	12.62	7.76	.49	.49	1,000
Irish	6,152	5.04	19.34	105.66	255.21	285.44	180.42	83.39	36.57	15.28	8.29	3.25	2.11	1,000
German	7,073	5.94	13.86	75.36	227.49	287.14	214.48	102.78	45.24	15.97	7.92	2.69	1.13	1,000
French	1,455	6.19	18.56	103.10	266.68	310.65	164.26	76.29	35.74	11.68	4.81	.69	1.37	1,000
Italian	3,520	4.83	20.74	113.63	285.23	270.48	177.85	78.12	30.68	11.36	4.26	2.56	.28	1,000
Polish	2,405	4.16	7.90	70.27	222.45	299.36	244.08	96.88	39.09	11.23	3.74	.83	......	1,000
Hebrew	1,687	4.15	29.64	142.27	289.88	260.22	148.79	74.10	30.82	12.45	4.74	.59	2.37	1,000
Number measured	28,548	5.53	17.06	107.58	253.93	284.96	182.85	86.74	38.18	13.52	6.52	2.10	1.05	1,000
Not measured	122	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......

(*e*) *Comparison of white and colored races.*—A comparison of white and Negro troops with reference to waist circumference has been made in earlier paragraphs and shows no important differences between the races in this respect. Despite the greater circumference of the chest in the white troops, the waist circumference is practically the same in white and colored. This shows that the Negro troops have the more nearly cylindrical body, the white troops more conical, the increase of the chest over the waist being 102 millimeters in Negro troops and 109 millimeters in white troops.

10. TRANSVERSE DIAMETER OF THE PELVIS.

(*a*) *General discussion.*—This was measured as the maximum distance between the crests of the ilium. It is measurement No. 40 of Martin[5] (p. 143):

Grösste Breite zwischen den Darmbeinkämmen (Beckenbreite, Cristalbreite, Distantia intercristalis; largeur maximum des hanches, diametre bi-iliaque externe; distance between iliac tubercles). Direct measurement, horizontal distance between the two ilio-cristalia, rod calipers. The measurement is thus taken against the labium externum of the crista iliaca and the arms of the instrument slightly pressed upon the flesh.

The measurements of 100,000 soldiers were taken practically in accordance with these directions.

The medical importance of this measurement is comparatively unimportant in the case of the male. It may have some relation to hernia, however, not yet determined. The military importance of this measurement is probably confined to its relation to uniforms. The breeches, constricted by the belt, are largely supported by the crest of the pelvis. In the case of slender soldiers the diameter of the body at the waist is less than at the pelvis; in the case of fat men it is greater. It is possible that the relation between circumference of waist and tranverse diameter of pelvis may come to have a medico-military significance, not only as an index of the nutrition of the soldier, but also because of its importance in relation to glandular disturbances that cause the deposition of fat on the omentum and in the body wall of the waist region.

The anthropological significance of pelvic diameter is very great. As Martin points out, this diameter is considerable in man and anthropoids. In Bavarians the breadth of pelvis is about 56 per cent of the length of the trunk (in women nearly 60 per cent). In the gorilla it is even larger, 66.5 per cent, in the chimpanzee 42 per cent, among the lower monkeys 37–25 per cent.

In general the species with broad pelvis have also broad shoulders, producing a rectangular form of the trunk.

The breadth of pelvis may also be expressed in relation to the total height. Here again the difference between the sexes is marked and the figures given here refer only to males. Thus, following Martin's (1914, p. 269) table, among European races the ratio of pelvic diameter to stature is: Jews, 16 per cent; Russians, 16.3 per cent; Poles, 16.4; French in general, 16.5; Parisians, 16.9; Germans in general, 17.0; Roumanians, 17.2. Among Asiatics, the south Chinese have the smallest pelvis, 14.7; Japanese, 15.3 to 16.6; northern Chinese, 17–18.3. Many African tribes have relatively small pelves; Fiot, 14.2; Batua, 14.4; Bushmen, 16.4. Thus Negroes, South Chinese, and Jews have the smallest pelvic diameter of their respective continents. The maximum pelvic diameter is found among the Iroquois Indians, viz., 18.9.

Gould[2] secured the measurement of the breadth of pelvis of several thousand soldiers and sailors. He gives as a mean dimension 11.92 inches, or 30.28 centimeters, the mean result for men in usual vigor being greater by 0.14 inch (or 0.36 centimeter) than for men in poor health.

Gould[2] found the following mean values for the breadth of pelvis for men in different parts of the country:

TABLE 90.—*Absolute transverse diameter of the pelvis, by sections, demobilization, 1865.*

Nativity.	Number of men.	Mean value.	Probable variation per individual.	Probable error.	Mean value in centimeters.
		Inches.	*Inches.*	*Inches.*	
New England	976	11.890	0.675	0.022	30.20
New York alone	2,085	12.046	.628	.012	30.60
New York, New Jersey, and Pennsylvania	3,119	12.014	.523	.009	30.51
Ohio and Indiana	1,417	11.890	.474	.013	30.20

(*b*) *Mean transverse diameter of the pelvis.*—The mean transverse pelvic diameter of the 95,658 white troops is 29.43 centimeters. The relative pelvic diameter is 17.11. Thus the transverse diameter of the body at the pelvis is 0.23 centimeter greater than the transverse chest diameter in white troops. This increase amounts to 1.36 per cent.

The mean transverse diameter of the pelvis of colored (Negro) troops is 28.42 centimeters, which is 1.01 centimeters less than that of white troops, despite the fact that the stature of the two races is practically the same. The transverse diameter of the pelvis is thus 0.63 centimeter less than the mean transverse diameter of the chest, or 2.169 per cent. The difference between the diameter of the chest and the pelvis is thus greater in colored than in white troops, despite the fact that the body form is more nearly cylindrical in the colored troops. This indicates then that the Negro troops have relatively narrower hips than the white troops and equal waists, but slightly smaller chest circumference. It may be remarked that casual observation of large numbers of Negro troops indicated the frequent presence of individuals with remarkably small pelvic diameter.

(*c*) *Standard deviation of transverse diameter of the pelvis.*—The standard deviation of transverse pelvic diameter for white troops is 2.85 centimeters and for colored 2.35, indicating a much greater absolute variability in white than in colored troops in this dimension. The coefficient of variation in this dimension is for white troops 9.684 per cent and for colored troops 8.269. Thus the pelvic diameter of colored troops is relatively as well as absolutely much less variable than that of white troops.

(*d*) *Comparison of eight European races.*—Table 92 gives the absolute and proportional frequencies of the different classes of transverse diameter of the pelvis for each of the eight races. From Table 91, fourth column from the right, it appears that the largest mean transverse diameter of the pelvis is found in the Germans, 29.80; next in the Poles, 29.55, followed by the Scotch and English.

TABLE 91.—*Absolute and relative transverse pelvic diameter, with the standard deviation and the coefficient of variation, in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute transverse pelvic diameter.	Standard deviation.	Coefficient of variation.	Relative transverse pelvic diameter.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	4,169	29.28	2.73	9.324	17.02
Scotch	2,053	29.38	2.84	9.666	17.03
Irish	6,108	28.92	2.69	9.302	16.88
German	7,051	29.80	2.87	9.631	17.32
French	1,429	28.70	2.65	9.233	17.02
Italian	3,501	28.62	2.61	9.120	17.33
Polish	2,396	29.55	2.64	8.934	17.44
Hebrew	1,688	28.34	2.60	9.174	16.98

The average transverse diameter of the pelvis is smallest in the Hebrew, 28.34; next in the Italians, then the French and Irish. The standard deviation as an index of variation is given in the third column from the right. This shows that in respect to transverse diameter of the pelvis, the Germans are the most variable, 2.87; Scotch next, followed by the English and Irish. The Hebrews are the least variable, 2.60, and then in ascending order come the Italians, Polish, and French. The last column at the right gives the relation of the average transverse diameter of the pelvis to average stature of each of the races. From this column it appears that the Poles have the relatively largest pelvic diameter, 17.44; followed by the Italians and Germans. The Irish have the relatively smallest pelvic diameter, 16.88, followed in ascending order by the Hebrew, French, English, and Scotch.

TABLE 92.—*Comparative frequency distribution of transverse pelvic diameter in each of eight European races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Transverse pelvis, in centimeters.																				
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
English	4,169	3	7	16	40	69	152	290	432	636	684	608	436	317	237	115	47	25	22	17	11	5
Scotch	2,053	3	7	7	22	34	77	119	198	309	326	333	206	160	96	72	32	26	8	4	8	6
Irish	6,108	6	12	26	59	127	282	517	716	981	1,083	829	577	391	214	121	55	37	23	19	22	11
German	7,051	5	16	17	61	91	170	368	625	952	1,151	1,014	794	623	479	266	198	103	43	27	28	20
French	1,429	2	3	4	12	27	70	131	191	286	257	168	114	58	34	25	17	9	8	6	3	4
Italian	3,501	3	10	16	51	75	168	310	499	605	629	451	294	177	92	39	23	15	14	15	10	5
Polish	2,396	3	10	3	4	28	62	121	235	358	420	398	288	184	128	59	37	19	15	13	9	2
Hebrew	1,688	......	4	16	32	55	95	170	247	280	289	206	126	84	33	19	13	7	6	3	3	......
Number measured	28,395	25	69	105	281	506	1,076	2,026	3,143	4,407	4,839	4,007	2,835	1,994	1,313	716	422	241	139	104	94	53
Not measured	275	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Transverse pelvis, in centimeters.																					
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total.
English	4,169	0.72	1.68	3.84	9.59	16.55	36.46	69.56	103.62	152.55	164.06	145.83	104.58	76.04	56.85	27.59	11.27	6.00	5.28	4.08	2.64	1.20	1,000
Scotch	2,053	1.46	3.41	3.41	10.72	16.56	37.51	57.96	96.45	150.50	158.80	162.20	100.34	77.94	46.76	35.07	15.59	12.66	3.90	1.95	3.90	2.92	1,000
Irish	6,108	.98	1.96	4.26	9.66	20.79	46.17	84.64	117.22	160.61	177.31	135.73	94.47	64.02	35.04	19.81	9.00	6.06	3.77	3.11	3.60	1.80	1,000
German	7,051	.71	2.27	2.41	8.65	12.91	24.11	52.19	88.64	135.01	163.23	143.81	112.61	88.35	67.93	37.72	28.08	14.61	6.10	3.83	3.97	2.84	1,000
French	1,429	1.40	2.10	2.80	8.40	18.89	48.99	91.67	133.66	200.14	179.85	117.56	79.77	40.59	23.79	17.49	11.90	6.30	5.60	4.20	2.10	2.80	1,000
Italian	3,501	.86	2.86	4.57	14.57	21.42	47.99	88.54	142.53	172.80	179.67	128.82	83.98	50.56	26.28	11.14	6.57	4.28	4.00	4.28	2.86	1.43	1,000
Polish	2,396	1.25	4.17	1.25	1.67	11.69	25.88	50.50	98.08	149.41	175.30	166.10	120.20	76.80	53.42	24.62	15.44	7.93	6.26	5.43	3.76	.83	1,000
Hebrew	1,688	......	2.37	9.48	18.96	32.58	56.28	100.71	146.33	165.89	171.21	122.04	74.64	49.76	19.55	11.26	7.70	4.15	3.55	1.78	1.78	......	1,000
Number measured	28,395	.88	2.43	3.70	9.90	17.82	37.90	71.35	110.69	155.20	170.41	141.11	99.84	70.22	46.24	25.21	14.86	8.49	4.90	3.66	3.31	1.87	1,000
Not measured	275	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	28,670	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

(*e*) *Comparison of color races.*—The following summary table gives the means of comparing the diameter of the pelvis of five color races:

TABLE 93.—*Absolute and relative transverse diameter of the pelvis in the five color races, demobilization, 1919.*

Race.	Number measured.	Mean diameter, in centimeters.	Relative transverse diameter of pelvis.
White	95,658	29.43	17.1
Negro (and mulatto)	6,354	28.42	16.5
Chinese	22	30.00	17.5
Japanese	32	28.88	16.9
Indian	107	29.71	17.3

The above table shows the comparative transverse pelvic diameter in the different color races. The mean diameter is seen to be 29.4 in the white troops and in Negro troops 28.4. There is, therefore, a difference of over 3 per cent—a deficiency in the Negro troops. The pelvic diameter of the Indians and Chinese is still greater than that of the whites, attaining 30 centimeters in the latter. The pelvic diameter of the Japanese, on the other hand, is only slightly greater than that of the Negro.

11. ARM LENGTH.

(*a*) *General discussion.*—The length of the arm was measured as the tailor measures it—from the second dorsal vertebra to the styloid process of the ulna of the right arm, the forearm being flexed. The arm length is, therefore, properly not such, but the half-diameter of the chest at the level of the axilla plus the length of the arm as far as the styloid process. This measure is perhaps useful only for tailors, as anthropologists usually measure the length of the arm from the acromion. The length of the arm in the strict sense may be approximately secured by subtracting one-half the transverse diameter of the chest. The relative arm length as measured from the acromion varies widely in different races, as is indicated by the table of Martin [5] (1914, p. 294). This is in the case of Bavarians, 35.4 per cent; French, 35 per cent; African Negroes, 35.5 per cent; Mawambu pygmies, 33.3 per cent; Lolo in Hunan, 32.4 per cent.

(*b*) *Mean arm length.*—The mean "arm" length in the Army measurements was for white troops 78.42 centimeters (Table LXXXII), and for Negro troops, 80.56 centimeters (Table CXIV). Thus it will be seen that with the same mean stature the Negro troops have "arms" which averaged 2.14 centimeters longer than white troops. The difference in relative arm length will be the same as the absolute arm length because of the similarity of height of the two races. If now we subtract the half of the transverse chest diameter from the "arm" length of white troops, we find it to be 78.42 minus 14.51, or 63.91. In the case of Negro troops, it is 80.56 minus 14.53, or 66.03. Thus a comparison of the arm length in the strict sense shows that of the Negro troops to be over 2 centimeters greater than that of white troops. The relative arm length will be secured by dividing these strict arm lengths by the stature. It is 37.16

in the case of whites and 38.40 in the case of Negro troops. From this point of view the relative arm length of Negro troops exceeded that of the white troops by about 3 per cent. This is in accordance with other observations, since, as shown in Martin's tables [5] (p. 293), there are three African races (Ba-Binga, Lobi, and Bugu) which have a relative entire arm length (including the finger) that is greater than that of any European races.

(c) *Standard deviation of arm length.*—The standard deviation of the "arm" length of the white troops is 4.69; of Negro troops, 4.76. Thus, absolutely, the latter are the more variable. A comparison of the coefficients of variation, however, gives 5.981 per cent for the whites and 5.909 per cent for the Negro troops. Thus the Negro troops are relatively less variable than the whites in this respect.

Double the arm length plus length of wrist and fingers is approximately equal to span. We have seen that span is greater in colored than in whites, just as "arm" length is. Also, both measures are absolutely more variable in the colored troops. Thus by both tests the arms of the colored are longer and absolutely more variable than those of white troops.

12. FOREARM LENGTH.

Table LXXXII shows the correlation between "total arm length" and that of forearm in white troops. The mean length of the forearm (that is, from the olecranon process to the styloid process) is, in the case of white troops, 26.91 centimeters, and in the case of colored troops, 28.20 centimeters. Dividing the mean forearm by the total "arm length," minus half the transverse chest diameter, we find that for white troops the forearm constitutes 42.01 per cent of the whole arm length and for colored troops, 42.71 per cent. Thus the forearm length is not only absolutely greater in colored than in whites but also constitutes a relatively larger proportion of the arm length.

The *relative* length of forearm (i. e., in proportion to stature) is in the case of white troops 15.65 per cent and in the case of Negro troops 16.40. In Martin's table (1914, p. 297) it appears that some of the African Negroes have a relatively greater arm length than any of the European races listed, even as great as 17.7 per cent. The relative arm length of these European races varies from 14.3 per cent (Parisians) to 15.5 per cent (Bavarians) and 15.9 per cent (Germans and Jews). Martin also notes that in exceptionally long arms excess length is especially due to the great length of forearm.

13. LEG LENGTH.

(a) *General discussion.*—The measurement here called leg length is actually the distance from the gluteal fold to the tip of the internal malleolus of the tibia, as measured by a tape. It is to be noted that this dimension added to the sitting height falls about 10 centimeters short of the total stature. The difference is due, on the one hand, to the height of the internal malleolus above the floor, which is about 8 centimeters. The remaining 2 centimeters are accounted for by the sag of the gluteal muscles in the standing subject, so that the gluteal fold lies about 2 centimeters farther from the vertex in the standing subject than in the sitting subject.

The leg length as thus measured is not the physiological leg length, but primarily of interest to the manufacturer of uniforms and other clothing. It is much less valuable from a military point of view than the total leg length as indicated by the height of the pubic arch. The leg length may also be secured by subtracting the sitting height from the total stature.

(*b*) *Mean leg length.*—The mean "leg length" as defined is for white troops 71.69 centimeters, as indicated by Table LXXVI. For Negro troops it is 74.38, as shown in Table XCII. Thus there is a difference of 2.69 centimeters between white and Negro troops, or 3.75 per cent of the "leg length" of the whites. The relative "leg length" is 41.68 per cent of height for white troops.

We may compare the leg length found by subtracting the sitting height from the total stature. In white troops this is 171.99 minus 90.39, or 81.60 centimeters. In the case of Negro troops it is 171.97 minus 87.35, or 84.62. Thus, by these means also we find an excess of 3.57 per cent in the leg length of Negro troops as compared with whites. Since the anthropoid apes are characterized by relatively short legs, the Negro in this respect represents a greater departure from the anthropoid types than do the whites. The *relative* leg length, determined by the method of subtracting sitting height from body height, is in the case of white troops 47.45 per cent and in the case of Negro troops 49.21 per cent. These figures are in good agreement with those given in Martin's table (p. 312), where the relative leg length obtained in this way is for Europeans mostly between 47.0 and 48.5 per cent, while for different African tribes it varies from 47.2 to 49.7 per cent. Armenians and Tartars have a relative leg length below the average; the American Indians show a great range in this respect.

(*c*) *Standard deviation of leg length.*—The standard deviation of "leg length" is for white troops, as shown in Table 103, 4.71, and for colored troops (Table 104) 4.59. The corresponding coefficients of variation are for white troops 6.57 and for colored 6.17. This shows again a lower relative variability in colored than in white troops in respect to this dimension.

(*d*) *Comparison of eight European races.*—Table 95 gives the distribution of absolute and proportional frequencies of "leg length" in the eight races. It will be recalled that the leg length is the distance from the gluteal fold to the internal malleolus and includes, therefore, the sum of the thigh and lower leg, excluding the foot. Table 94 shows in the third column from the right the average leg length of the different races. This is greatest in the Scotch, 71.68, and next in the Germans, followed by the English and Irish. It is lowest in the Italians, followed by the Hebrews, French, and Poles. The third column from the right gives the variability of leg lengths for the different races. This is seen to be greatest among the English, next among the Scotch, and then in order among the Germans and Irish. It is least, 4.19, among the Italians, and then slightly greater in order among the Hebrews, Poles, and French.

TABLE 94.—*Absolute and relative leg length with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute leg length.	Standard deviation.	Coefficient of variation.	Relative leg length.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	4,152	71.34	4.59	6.434	41.46
Scotch	2,038	71.68	4.56	6.362	41.54
Irish	6,110	70.91	4.39	6.191	41.38
German	7,012	71.47	4.51	6.310	41.54
French	1,438	69.22	4.34	6.270	41.06
Italian	3,446	67.84	4.19	6.176	41.07
Polish	2,377	70.16	4.30	6.129	41.41
Hebrew	1,664	68.93	4.29	6.224	41.30

Since leg length is partly dependent upon stature, the right-hand column shows that the Scotch and Germans have relatively the greatest leg length, 41.54, as above defined; they are followed by the English and Poles. The French have the least relative leg length, 41.06, as above defined, being in this respect close to the Italians. Considerably above them stand the Hebrews and Irish. Since the French have relatively the greatest height of pubic arch and the shortest relative leg length, it would follow either that the ankle is relatively high in the French or that the symphysis pubis is placed relatively high.

TABLE 95.—*Comparative frequency distribution of leg length in each of eight European races, demobilization, 1919.*

SECTION A. ABSOLUTE NUMBERS.

Race.	Total.	Leg length, in centimeters.													
		60-61	62-63	64-65	66-67	68-69	70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87
English	4,152	31	124	245	467	598	731	662	557	358	207	95	44	19	14
Scotch	2,038	20	43	105	182	303	375	354	245	188	121	64	27	7	4
Irish	6,110	61	156	379	733	1,045	1,184	947	700	467	241	109	58	23	7
German	7,012	57	166	396	665	1,046	1,343	1,190	891	621	314	177	88	43	15
French	1,438	41	88	152	225	286	246	175	109	63	31	13	7	1	1
Italian	3,446	174	351	543	638	619	477	328	157	92	45	14	5	1	2
Polish	2,377	37	88	184	341	429	447	359	244	135	60	30	10	10	3
Hebrew	1,664	52	106	200	276	333	274	194	104	68	38	12	4	1	2
Number measured	28,237	473	1,122	2,204	3,527	4,659	5,077	4,209	3,007	1,992	1,057	514	243	105	48
Not measured	433														
Total	28,670														

SECTION B. PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Leg length, in centimeters.														
		60-61	62-63	64-65	66-67	68-69	70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85	86-87	Total.
English	4,152	7.47	29.87	59.01	112.48	144.03	176.06	159.44	134.15	86.23	49.85	22.88	10.60	4.58	3.37	1,000
Scotch	2,038	9.81	21.10	51.52	89.31	148.68	184.00	173.70	120.22	92.25	59.37	31.40	13.25	3.43	1.96	1,000
Irish	6,110	9.98	25.53	62.04	119.97	171.03	193.79	155.00	114.57	76.44	39.45	17.84	9.49	3.76	1.15	1,000
German	7,012	8.13	23.67	56.47	94.84	149.16	191.53	169.71	127.07	88.56	44.78	25.24	12.55	6.13	2.14	1,000
French	1,438	28.51	61.20	105.70	156.47	198.89	171.07	121.70	75.80	43.81	21.56	9.04	4.87	.70	.70	1,000
Italian	3,446	50.50	101.86	157.58	185.14	179.63	138.42	95.19	45.56	26.70	13.06	4.06	1.45	.29	.58	1,000
Polish	2,377	15.57	37.02	77.41	143.46	180.48	188.06	151.03	102.65	56.80	25.24	12.62	4.21	4.21	1.26	1,000
Hebrew	1,664	31.25	63.70	120.19	165.87	200.12	164.67	116.59	62.50	40.87	22.84	7.21	2.40	.60	1.20	1,000
Number measured	28,237	16.75	39.73	78.05	124.91	165.00	179.80	149.06	106.49	70.55	37.43	18.20	8.61	3.72	1.70	1,000
Not measured	433															
Total	28,670															

(*e*) *Comparison of color races.*—The following table gives a summary of the absolute and relative leg lengths of the five colored races measured:

TABLE 96.—*Absolute and relative leg length in five color races, demobilization, 1919.*

Race.	Number measured.	Mean length.	Relative leg length.
		Centimeters.	*Per cent.*
White	76,141	71.69	41.7
Negro (and mulatto)	5,595	74.38	43.3
Chinese	22	70.86	41.4
Japanese	29	74.22	43.4
Indian	106	71.63	41.8

The distance from the gluteal fold to the internal malleolus in the different races is shown in the table above. We see from this table again that the leg length is over 2.69 centimeters greater in Negro troops than in white, despite the practical equality in total stature. The relative leg length is 43.3 per cent among the Negro troops, 41.7 per cent among the whites, and 41.4 per cent among the Chinese; the Japanese, 43.4, and Indian, 41.8. The Japanese in this respect are more like the Negro troops.

14. KNEE HEIGHT.

(*a*) *General discussion.*—Knee height was taken as the distance from the floor to the top of the patella. It has relatively small military importance, excepting in so far as by subtracting it from the "leg length" plus 8 centimeters the length of the thigh will be given, from which may be estimated the corresponding dimensions of the breeches.

(*b*) *Mean knee height.*—The mean knee height for white troops is 47.08 (Table 103); for colored troops, 47.26 (Table 104). That of the colored troops is sensibly greater than that of the white troops. In the case of white troops the knee height constitutes 65.67 per cent of leg length, and in the case of the colored troops 63.54 per cent. Thus in the colored troops the lower leg is relatively a smaller proportion of the whole leg length than in the case of the white troops; consequently the thigh is relatively long. This is in striking contrast to the conditions found in the upper appendage, where the forearm (exclusive of the hand) proves to form a relatively larger proportion of the whole arm in colored than in white troops. Since the proportion of knee height to total stature is, in the case of white troops, 27.38 per cent and 27.48 in the case of colored, in relation to total stature the lower leg of the colored troops is greater than that of white troops, and this despite the fact that it constitutes a smaller fraction of the total "leg length."

The index giving the relation of upper leg to lower leg (excluding the foot) may be calculated as follows:

	White.	Colored.
Pubic height	86.82	89.42
Knee height	47.08	47.26
Thigh	39.74	42.16

Also the lower leg length in the strict sense, excluding the foot, may be approximately determined by subtracting 8 centimeters from the knee height. This gives us, then, in the case of whites, a net lower leg length of 39.08 centimeters; in the case of colored, 39.26 centimeters.

(c) *Standard deviation of knee height.*—This is 3.62 centimeters in white troops and 3.64 centimeters in colored; the length of lower leg and foot is absolutely more variable in white than in Negro troops, despite their shorter length in whites. The coefficient of variability of this dimension is in white troops 7.689 per cent and in colored 7.702 per cent. This is a relatively high coefficient.

TABLE 97.—*Absolute and relative knee height with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute knee height.	Standard deviation.	Coefficient of variation.	Relative knee height.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	3,171	47.74	4.14	8.672	27.74
Scotch	1,651	47.83	3.91	8.175	27.72
Irish	4,703	46.59	3.72	7.985	27.19
German	5,646	47.22	3.74	7.920	27.45
French	701	46.83	3.84	8.200	27.78
Italian	2,880	45.13	3.51	7.778	27.32
Polish	1,917	46.69	3.66	7.839	27.56
Hebrew	1,468	45.57	3.59	7.878	27.30

TABLE 98.—*Comparative frequency distribution of knee height in each of eight European races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Knee height, in centimeters.																							
		30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77
English	3,171	.....	1	5	12	32	101	289	539	615	552	455	296	167	72	30	1	.....	1	1	.....	1	.....	1	.....
Scotch	1,651	1	.....	3	4	12	56	118	263	332	334	233	118	79	29	7	1	.....	.....	.....	.....	.....	1	.....	.....
Irish	4,703	3	1	19	24	57	182	529	1,038	1,099	862	462	262	105	43	9	3	.....	.....	1	1	.....	2	1	.....
German	5,646	1	2	12	31	59	163	478	998	1,389	1,197	673	346	186	80	21	5	.....	1	.....	.....	2	1	.....	1
French	701	.....	1	2	6	9	26	74	129	168	139	78	37	20	6	5	.....	.....	.....	1	.....	.....	.....	.....	.....
Italian	2,880	2	4	4	13	57	293	554	765	538	355	182	69	30	8	4	.....	.....	.....	.....	.....	.....	1	1	.....
Polish	1,917	1	3	5	5	24	83	191	413	464	327	222	114	48	12	1	1	2	1	.....	.....	.....	.....	.....	.....
Hebrew	1,468	1	3	2	7	27	101	262	366	336	174	101	55	20	10	1	.....	1	.....	1	.....	.....	.....	.....	.....
Number measured	22,137	9	15	52	102	277	1,005	2,495	4,511	4,941	3,940	2,406	1,357	655	260	78	11	3	3	4	1	3	5	3	1
Not measured	6,533	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	28,670	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Knee height, in centimeters.																								To-tal.
		30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77	
English	3,171	.....	0.32	1.58	3.78	10.09	31.85	91.14	169.98	193.93	174.08	143.49	93.35	52.66	22.70	9.46	0.32	.....	0.32	0.32	.....	0.32	.....	0.32	.....	1,000
Scotch	1,651	0.61	.....	1.82	2.42	7.27	33.92	71.47	159.30	201.09	202.30	141.11	107.81	47.85	17.56	4.24	.61	.....	.....	.....	.....	.....	0.61	.....	.....	1,000
Irish	4,703	.64	.21	4.04	5.10	12.12	38.70	112.49	220.70	233.67	183.29	98.24	55.71	22.33	9.14	1.91	.64	.....	.....	.21	0.21	.....	.43	.21	.....	1,000
German	5,646	.18	.35	2.13	5.49	10.45	28.87	84.66	176.77	246.01	212.00	119.20	61.28	32.94	14.17	3.72	.89	.....	.18	.....	.....	.35	.18	.....	0.18	1,000
French	701	.....	1.43	2.85	8.56	12.84	37.09	105.56	184.01	239.65	198.29	111.27	52.78	28.53	8.56	7.13	.....	.....	.....	1.43	.....	.....	.....	.....	.....	1,000
Italian	2,880	.69	1.39	1.39	4.51	19.79	101.73	192.36	265.61	186.80	123.26	63.19	23.96	10.42	2.78	1.39	.....	.....	.....	.....	.....	.....	.35	.35	.....	1,000
Polish	1,917	.52	1.56	2.61	2.61	12.52	43.30	99.64	215.45	242.05	170.59	115.81	59.47	25.04	6.26	.52	.52	1.04	.52	.....	.....	.....	.....	.....	.....	1,000
Hebrew	1,468	.68	2.04	1.36	4.77	18.39	68.81	178.49	249.31	228.89	118.53	68.81	37.47	13.62	6.81	.68	.....	.68	.....	.68	.....	.....	.....	.....	.....	1,000
Number measured	22,137	.41	.68	2.35	4.61	12.51	45.40	112.71	203.78	223.20	177.99	108.69	61.30	29.59	11.75	3.52	.50	.14	.14	.18	.05	.14	.23	.14	.05	1,000
Not measured	6,533	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	28,670	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

15. THIGH CIRCUMFERENCE.

(*a*) *General discussion.*—Measurers were instructed to secure the maximum circumference of the thigh by means of a tape passed around the upper portion of the thigh and moved slightly upward until it reached the level of the gluteal fold.

The military importance of this measurement is probably not great, though there is possibly a correlation (never determined, however) between the thigh girth and the capacity of the soldier to make prolonged marches and carry heavy burdens. The circumference of the thigh was used in the table of manikin dimensions (Table 122) to secure the greatest breadth of the "hips" or greatest transverse diameter at the level of the gluteal fold. This was obtained by taking twice the quotient of the circumference of the thigh divided by π, or 3.1416.

The thigh girth in relation to stature varies in different races. It attains its smallest dimensions in certain African tribes. Thus in the Ba-Tua the relative thigh girth is given as 28.2 (Martin,[5] p. 322). The length of the thigh divided by its circumference gives an index which varies markedly during developmental years. In the case of children 14–15 years this ratio is about 52 per cent.

(*b*) *Mean thigh circumference.*—The mean thigh circumference for white troops is 52.709 centimeters, as shown in Table 103. The corresponding measurement for colored troops is 54.077 (Table 104). Thus in the colored troops it is 1.3 centimeters greater than in white troops. The relative thigh circumference is 30.65 per cent of stature in the case of white troops, about the same as for the average European (Martin,[5] p. 322). In the case of colored troops it is 31.45, about the same as for the Ba-Binga, as shown in Martin (1914, p. 322). The length divided by the circumference is 75.60 per cent in the white troops and 77.96 in the colored.

(*c*) *Standard deviation of thigh circumference.*—The standard deviation of thigh circumference is for white troops 3.73 centimeters, as shown in Table 103, and for colored troops 3.72, or practically the same. Since the mean circumference is greater for the colored troops than for the whites, the coefficient of variability of the colored troops (6.88) is less than that for the whites (7.08).

(*d*) *Comparison of eight European races.*—Tables 100 give the absolute and proportional frequencies of each of the different classes of thigh girth for each of the eight races. In Table 99 the third column from the left gives the mean thigh girth for each of these races. From this column it appears that at demobilization the men of German origin showed the greatest thigh girth, 53.19. These were followed by the Poles, English, and Scotch. On the other hand, the French have the smallest thigh girth, 51.98, followed in ascending order by the Italians, Hebrews, and Irish. The third column from the right gives the standard deviation as an index of variability in these races. From this column it appears that the thigh girth is most variable in the Irish, 3.68; next in the English, 3.66; then in the Germans, Italians, and Hebrews. It is least variable in the French, 3.44; followed in ascending series by Polish and Scotch. Thigh circumference in relation to stature is given in the right-hand column of

Table 99. From this column it appears that the Italians have the relatively largest thigh girth, 31.50, followed by the Hebrews, Polish, and Germans. The Scotch have the relatively smallest thigh girth, 30.35, followed in ascending order by the English, Irish, and French. Thus in general the Mediterranean peoples and Hebrews have the largest relative thigh girth; the Nordic races and the French the relatively smallest thigh girth. This is another index of the slenderness of the Nordics.

TABLE 99.—*Absolute and relative thigh circumference with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Absolute thigh circumference.	Standard deviation.	Coefficient of variation.	Relative thigh circumference.
		Centimeters.	*Centimeters.*	*Per cent.*	*Per cent.*
English	4,146	52.38	3.66	6.987	30.44
Scotch	2,037	52.36	3.56	6.799	30.35
Irish	6,070	52.27	3.68	7.040	30.50
German	6,960	53.19	3.62	6.806	30.92
French	1,451	51.98	3.44	6.618	30.83
Italian	3,489	52.03	3.59	6.900	31.50
Polish	2,385	52.46	3.45	6.576	30.97
Hebrew	1,664	52.18	3.58	6.861	31.26

TABLE 100.—*Comparative frequency distribution of thigh circumference in each of eight European races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Thigh circumference, in centimeters.																								
		42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
English	4,146	4	11	27	50	92	140	225	323	422	475	444	488	372	308	233	167	132	85	48	36	24	25	10	5	....
Scotch	2,037	3	11	12	19	42	57	117	152	180	237	248	213	199	191	106	96	54	29	24	14	9	4	6	3	1
Irish	6,070	8	18	36	69	108	259	347	519	638	672	706	632	556	438	306	244	183	125	73	42	25	24	16	16	16
German	6,960	6	10	18	38	87	163	273	424	616	680	774	781	716	654	522	367	280	216	138	70	57	25	21	14	10
French	1,451	3	6	2	11	31	77	91	123	158	156	186	153	143	109	81	42	23	16	15	9	6	6	2	2	....
Italian	3,489	7	9	24	43	78	152	216	303	377	410	423	385	281	227	173	135	82	60	37	27	17	8	6	5	4
Polish	2,385	4	5	4	23	43	74	122	167	247	246	341	266	260	160	141	84	76	53	26	19	14	5	....	2	3
Hebrew	1,664	2	6	13	18	32	52	92	126	201	211	197	192	154	114	70	53	47	29	23	11	2	5	5	6	3
Number measured	28,202	37	76	136	271	513	984	1,483	2,137	2,839	3,087	3,319	3,110	2,681	2,201	1,632	1,188	877	613	384	228	154	102	66	53	31
Not measured	468	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Thigh circumference, in centimeters.																									
		42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	Total.
English	4,146	0.96	2.65	6.51	12.06	22.19	33.77	54.28	77.91	101.79	114.57	107.10	117.70	89.73	74.29	56.20	40.28	31.84	20.50	11.58	8.68	5.79	6.03	2.41	1.21	.....	1,000
Scotch	2,037	1.47	5.40	5.89	9.33	20.62	32.90	57.44	74.62	88.37	116.35	121.75	104.57	97.71	93.77	52.04	47.13	26.51	14.24	11.78	6.87	4.42	1.96	2.95	1.47	0.49	1,000
Irish	6,070	1.32	2.97	5.93	11.37	17.79	42.67	57.17	85.50	105.11	110.71	116.31	104.12	91.60	72.16	50.41	40.20	30.15	20.59	12.03	6.92	4.12	3.95	2.64	2.64	1.65	1,000
German	6,960	.86	1.44	2.59	5.46	12.50	23.42	39.23	60.92	88.50	97.70	111.21	112.21	102.87	93.97	75.00	52.73	40.23	31.03	19.83	10.06	8.19	3.59	3.02	2.01	1.44	1,000
French	1,451	2.07	4.14	1.38	7.58	21.37	53.07	62.72	84.78	108.89	107.51	128.19	105.45	98.56	75.12	55.83	28.95	15.85	11.03	10.34	6.20	4.14	4.14	1.38	1.38	.....	1,000
Italian	3,489	2.01	2.58	6.88	12.32	22.35	43.56	61.91	86.84	108.05	117.50	121.24	110.35	80.54	65.06	49.58	38.69	23.50	17.20	10.60	7.74	4.87	2.29	1.72	1.43	1.15	1,000
Polish	2,385	1.68	2.10	1.68	9.64	18.03	31.03	51.15	70.02	103.56	103.14	142.97	111.53	109.01	67.09	59.12	35.22	31.86	22.22	10.90	7.97	5.87	2.10	.....	.84	1.26	1,000
Hebrew	1,664	1.20	3.61	7.81	10.82	19.23	31.25	55.29	75.72	120.80	126.80	118.39	115.39	92.55	68.51	42.07	31.85	28.25	17.43	13.82	6.61	1.20	3.01	3.01	3.61	1.80	1,000
Number measured	28,202	1.31	2.69	4.82	9.61	18.19	34.89	52.58	75.78	100.67	109.46	117.69	110.28	95.06	78.04	57.87	42.12	31.10	21.73	13.62	8.08	5.46	3.62	234	1.88	1.10	1,000
Not measured	468	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	28,670	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

16. CALF CIRCUMFERENCE.

(*a*) *General discussion.*—The instructions to anthropologists at camps called for the measurement of the maximum circumference of the calf.

Martin [5] states (p. 322) that the stronger or weaker development of the calf rests either upon the development of the musculus triceps suræ or on the degree of enlargement of the panniculus adiposus. The latter factor contributes more to the circumference of the calf in the female, the former in the male sex. Strongly muscular calves indicate a highly placed belly of the gastrocnemius muscle, while calves of smaller circumference are characterized by a gastrocnemius with longer muscle fibers but smaller cross section. Also there is a correlation with the length of the tibia, since with a shorter tibia there is found prevalently a gastrocnemius with short-muscled belly and longer tendons; with the longer bone, on the contrary, the muscle with a long belly and short tendons. The calf of small circumference (i. e., a slight development in breadth and thickness of the musculus triceps suræ, and with a low lying transition of the muscle into the terminal tendons) is found especially in the Negro groups, among the Egyptians, Australians, Dravida, and Weddas; while thicker and shorter calves are characteristics of most European groups, and of the Mongoloid and Malay varieties.

The military importance of the circumference of the calf is slight. It measures something of the degree of development of the gastrocnemius muscle, which is of great importance in marching.

(*b*) *Mean calf circumference.*—The mean calf circumference of white troops is 34.09 centimeters and that of the colored troops 34.71 centimeters, which is 0.62 centimeter greater than that of the white troops. This is the more remarkable in view of the general slenderness of calf in African tribes. The circumference of the calf in relation to total stature is found from the data given in Tables 103 and 104 for white and colored troops, respectively. In the case of the former it is 19.82 per cent, which is somewhat less than the average European, placed by Martin [5] (p. 322) at 20.5. In colored troops it is 20.18.

The relation between the maximum calf circumference and thigh circumference is, in the case of white troops, 64.7 per cent, and in the case of colored troops, 64.2 per cent. These are rather low ratios compared with those given by Martin [5] (p. 322), which lie between 66.3 and 70 per cent in the male.

(*c*) *Standard deviation of calf circumference.*—The standard deviation of calf circumference in white troops is 2.019 centimeters and in the case of colored 2.01. The coefficient of variation is, in the case of white troops, 5.93 per cent, and in the case of colored, 5.79 per cent. Thus the calf circumference is much more variable in colored than in white troops.

(*d*) *Comparison of eight European races.*—Table 102 gives the absolute and proportional frequencies of occurrence of the different classes of calf circumference for each of the eight races.

The third column from the left of Table 101 gives the mean calf circumference. This varies in the different races from a maximum in the Polish of 34.44, followed in descending order by the Germans and Scotch. The minimum average calf circumference, 33.68, is found among the Hebrews, followed in ascending order by the French, Italians, Irish, and English. The relative variability in this dimension in the various races is indicated by the standard deviation, third column from the right. According to this the English and Irish have the greatest variability in calf circumference, 2.07, followed by the Scotch. Relatively slight variability is found in the Polish, 1.93, followed in increasing order by the French, Germans, Italians, and Hebrews. Thus, the more northern races show greater variability in respect to this dimension. In the right-hand column of Table 101 is given the calf circumference in relation to stature. The relatively greatest calf circumference is found among the Italians, 20.41; followed by the Polish, Hebrews, Germans, and French. The relatively smallest calf circumference is found among the English, 19.70; followed in ascending order by the Scotch and Irish. Thus the northern races show the smallest relative calf circumference, which is in accordance with the generally slender build of these people.

TABLE 101.—*Absolute and relative calf circumference, with the standard deviation and the coefficient of variation in eight European races, demobilization, 1919.*

Race.	Number measured.	Mean absolute calf circumference.	Standard deviation.	Coefficient of variation.	Relative calf circumference.
		Cm.	*Cm.*	*Per cent.*	*Per cent.*
English	4,214	33.90	2.07	6.106	19.70
Scotch	2,079	34.04	2.06	6.052	19.73
Irish	6,174	33.83	2.07	6.119	19.74
German	7,094	34.40	2.02	5.872	20.00
French	1,463	33.68	1.96	5.820	19.98
Italian	3,532	33.71	2.04	6.052	20.41
Polish	2,417	34.44	1.93	5.604	20.33
Hebrew	1,697	33.66	2.04	6.061	20.17

TABLE 102.—*Comparative frequency distribution of calf circumference in each of eight European races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Calf circumference, in centimeters.											
		29	30	31	32	33	34	35	36	37	38	39	40
English	4,214	29	140	320	609	766	802	662	431	232	119	92	12
Scotch	2,079	15	57	136	285	369	382	350	239	139	51	50	6
Irish	6,174	70	218	462	865	1,177	1,211	950	598	327	149	126	21
German	7,094	32	131	314	731	1,172	1,415	1,245	992	572	290	184	16
French	1,463	15	47	116	243	281	284	228	129	75	23	21	1
Italian	3,532	39	141	295	533	672	672	524	352	159	82	61	2
Polish	2,417	6	34	102	230	403	484	468	340	204	92	51	3
Hebrew	1,697	24	58	149	253	350	322	263	137	63	36	39	3
Total	28,670	230	826	1,894	3,749	5,190	5,572	4,690	3,218	1,771	842	624	64

SECTION B: PROPORTIONAL RATIOS PER 1,000.

Race.	Total.	Calf circumference, in centimeters.												Total.
		29	30	31	32	33	34	35	36	37	38	39	40	
English	4,214	6.88	33.22	75.94	144.52	181.78	190.32	157.10	102.28	55.06	28.24	21.83	2.85	1,000
Scotch	2,079	7.22	27.42	65.42	137.10	177.49	183.74	168.35	114.96	66.86	24.53	24.05	2.89	1,000
Irish	6,174	11.34	35.31	74.83	140.10	190.64	196.15	153.87	96.87	52.97	24.13	20.41	3.40	1,000
German	7,094	4.51	18.47	44.26	103.04	165.21	199.46	175.50	139.84	80.63	40.88	25.94	2.26	1,000
French	1,463	10.25	32.13	79.29	166.10	192.07	194.12	155.84	88.18	51.27	15.72	14.35	.68	1,000
Italian	3,532	11.04	39.92	83.52	150.90	190.26	190.26	148.36	99.66	45.02	23.22	17.27	.57	1,000
Polish	2,417	2.48	14.07	42.20	95.16	166.73	200.25	193.63	140.67	84.40	38.06	21.10	1.24	1,000
Hebrew	1,697	14.14	34.18	87.80	149.09	206.25	189.75	154.98	80.73	37.12	21.21	22.98	1.77	1,000
Total	28,670	8.02	28.81	66.06	130.76	181.02	194.35	163.59	112.24	61.77	29.37	21.76	2.23	1,000

17. SUPRAPATELLA CIRCUMFERENCE.

(*a*) *General discussion.*—The directions required the anthropologists to take the circumference of the leg above the patella. The importance of this measurement seemed to be primarily for uniforms, as these fit closely at this part of the leg.

(*b*) *Mean suprapatella circumference.*—Tne mean suprapatella circumference was 37.336 centimeters for white troops, and 37.611 centimeters for Negro, thus about 0.3 centimeter greater in Negro troops, corresponding with their generally greater girth of leg. Since the stature of the white and Negro troops is the same, the relative circumference of the suprapatella region is in the same proportion as the mean.

(*c*) *Standard deviation of suprapatella circumference.*—The standard deviation of suprapatella circumference is 2.45 centimeters for white troops and 2.43 centimeters for Negro troops, or nearly the same. The coefficient of variation of suprapatella circumference in white troops is 6.56, a relatively high variability, and in the case of Negro troops it is 6.46, a strikingly lower variability.

18. KNEE-PATELLA CIRCUMFERENCE.

(*a*) *General discussion.*—The instructions for anthropologists called for the measurement of the knee at the level of the patella. This measurement was taken primarily for the fitting of uniforms.

(*b*) *Mean knee-patella circumference.*—The mean patella circumference among white troops is 36.21 centimeters, and in colored troops 36.52 centimeters. Thus the patella circumference of the colored troops exceeds markedly that of the white troops which is in accordance with the greater girths of other parts of the leg.

(*c*) *Standard deviation of knee-patella circumference.*—The standard deviation of patella circumference is for white troops 1.979, and for Negro troops 1.987. The relative variability in the whites is 5.47 per cent and in the Negro troops 5.45 per cent. Here again this dimension shows itself relatively less variable in the Negro than in the white troops.

19. COMPARISON OF DIMENSIONS OF WHITE AND NEGRO TROOPS.

(*a*) *Comparison of means of whites and Negroes.*—In the preceding sections there have been given for many of the dimensions the averages found in the color races. The numbers involved are small in the case of Japanese, Chinese, and Indians, but are so considerable in the case of white and Negro troops as to make a comparison significant.

Tables 103 and 104 give the differences in means and standard deviations of 20 dimensions of white and Negro troops. The results of these tables are shown graphically in Plate I. From the tables and the plate it appears that whereas the average height of white and Negro soldiers is practically the same the Negro men exceeded, on the average, the white men in the following dimensions:

(*b*) *Span.*—The total span of the Negroes is about 3 per cent greater than that of white men.

(c) *Leg length.*—Since the lengths of arm and leg are correlated in animals generally, it is in accordance with expectation to find that the leg is longer in the Negro than in the white troops, showing an excess of about 3 per cent.

(d) *Arm length.*—As this constitutes an important part of the span, we may expect, as we find, that arm length will be greater in the Negro than in the white troops.

(e) *Pubic height.*—This measures the physiological length of leg and shows about the same excess as leg length.

(f) *Knee height.*—As a component of leg length, knee height shows a slight excess in Negro over white troops.

(g) *Forearm.*—This, as in the segments of the arm length, shows an excess in the Negro troops.

(h) *Sternal notch.*—This is slightly greater in Negro than in white troops. Consequently the height of neck and head together must be less in Negro than in white troops.

(i) *Sitting height.*—Since the total height is the same and the leg length greater in Negro than in white troops (Gould, 1865, pp. 253, 255, 299; also our Table 108), it is clear that sitting height must be less in Negro than in white troops, and such proves to be the case. This smaller sitting height is due in part to the smaller length of head and neck in Negro troops as compared with white troops, but also the length of the trunk from the gluteal fold to sternal notch is relatively less in Negro than in white troops.

In contrast with the vertical dimensions the circumferences and diameters show for the most part relatively slight differences between white and Negro troops; largely because they are smaller dimensions. However, certain differences are clearly shown. The circumferences of the trunk, whether taken at chest or at waist, are slightly less in Negro than in white troops. The transverse diameter of the pelvis is strikingly less in Negro troops. The breadth of the shoulder is, however, somewhat greater in Negro than in white troops and the same is true of the circumference of the neck, thigh, and calf.

Despite approximately the same height, Negro troops weighed nearly 5 pounds more than white troops. The index of build of the Negro troops was about 32.7 as compared with 31.6 for white troops.

The general comparative picture we get of the white troops (including a great variety of races) and the Negro troops is this: The Negro troops have relatively longer legs and arms; shorter trunks; smaller circumference of the waist; more nearly parallel outlines of the trunk; the waist is less marked because of the relatively small transverse diameter of the pelvis and chest; less nearly circular ellipse on cross section of the chest; larger, shorter necks; larger leg girth; and greater weight than the whites. The Negro seems more powerfully developed from the pelvis down and the white more powerfully developed in the chest.

In summary, then, the main differences of shape between Negro and white troops are that the former have relatively longer appendages, shorter trunk, head, and neck, broader shoulders, narrower pelvis, and greater girth of neck, thigh, and calf than the latter.

TABLE 103.—*Summary of dimensions of approximately 100,000 white troops, demobilization.*

	Number of men measured.	Mean.		Relation to height (centimeters).	Standard deviation (centimeters).	Probable error (centimeters).	Coefficient of variation (centimeter) (per cent).	Standard deviation (inches).	Table from which figures were taken.
		Centimeters.	Inches.						
Stature	96,596	171.99	67.72	....	6.66	±0.0102	3.872	2.62	LXXXIII
Span	96,596	175.58	69.13	102.10	7.95	± .0122	4.528	3.13	LXXXIV
Sitting height	96,239	90.39	35.59	52.55	3.51	± .0054	3.883	1.38	LXXXIII
Pubic arch, height	91,365	86.82	34.18	50.47	5.05	± .0080	5.817	1.99	LXXXVI
Sternal notch, height	96,439	141.18	55.58	82.09	5.91	± .0091	4.186	2.33	LXXXV
Leg length	76,141	71.69	28.22	41.68	4.71	± .0081	6.570	1.85	LXXVI
Knee height	76,141	47.08	18.54	27.38	3.62	± .0063	7.689	1.43	LXXVI
Arm length	94,940	78.57	30.87	45.60	4.69	± .0053	5.981	.90	LXXXII
Forearm	82,492	26.91	10.59	15.65	1.73	± .0029	6.429	.68	LXXXII
Chest circumference	95,867	88.79	34.96	51.62	5.09	± .0078	5.733	2.00	XCIX
Chest transverse	96,583	29.02	11.42	16.87	2.40	± .0037	8.270	.94	LXXX
Chest, antero-posterior	96,583	21.58	8.50	12.55	1.87	± .0029	8.665	.74	LXXX
Shoulder width	95,167	41.81	16.46	24.31	2.41	± .0037	5.764	.95	CI
Neck circumference	95,271	35.98	14.16	20.92	1.80	± .0028	5.003	.71	LXXVIII
Waist circumference	96,157	77.87	30.66	45.28	6.00	± .0093	7.705	2.36	LXXXI
Transverse pelvic diameter	95,658	29.43	11.59	17.11	2.85	± .0044	9.684	1.12	LXXXI
Thigh circumference	95,188	52.71	20.75	30.65	3.73	± .0058	7.076	1.47	CXVIII
Suprapatella	96,157	37.34	14.70	21.71	2.45	± .0056	6.561	.96	CXIX
Knee patella	96,157	36.21	14.26	21.05	1.98	± .0030	5.468	.78	CXX
Calf circumference	96,087	34.09	13.42	19.82	2.02	± .0045	5.925	.80	CXXI
Weight	79,706	[a] 65.62	[b] 144.67	[c] 31.56	[a] 7.67	± .0424	3.587	[b] 16.92	

[a] Kilograms. [b] Pounds. [c] $\frac{\text{Weight in pounds} \times 1{,}000.}{(\text{Height in inches.})^2}$

TABLE 104.—*Summary of dimensions of approximately 6,000 colored troops, demobilization.*

	Number of men measured.	Mean.		Relation to height (centimeters).	Standard deviation (centimeters)	Probable error (centimeters).	Coefficient of variation (centimeter) (per cent).	Standard deviation (inches).	Table from which figures were taken.
		Centimeters.	Inches.						
Stature	6,441	171.97	67.70	....	6.91	±0.0410	4.018	2.72	LXXXIX
Span	6,441	180.76	71.17	105.10	8.59	± .0510	4.752	3.38	LXXXVIII
Sitting height	6,443	87.35	34.39	50.79	3.48	± .0207	3.984	1.37	LXXXVII
Pubic arch, height	6,220	89.42	35.21	52.00	5.27	± .0319	5.894	2.07	XC
Sternal notch, height	6,454	142.39	56.06	82.80	6.05	± .0359	4.249	2.38	LXXXIX
Leg length	5,595	74.38	29.28	43.25	4.59	± .0292	6.171	1.81	XCII
Knee height	5,725	47.26	18.61	27.48	3.64	± .0229	7.702	1.43	XCI
Arm length	6,135	80.56	31.72	46.85	4.76	± .0213	5.909	.93	CXIV
Forearm	5,514	28.20	11.10	16.40	2.03	± .0131	7.199	.80	XCVIII
Chest circumference	6,355	87.99	34.64	51.17	4.76	± .0285	5.410	1.48	CVII
Chest transverse	6,450	29.05	11.44	16.89	2.26	± .0134	7.780	.89	XCVI
Chest, antero-posterior	6,450	21.21	8.35	12.33	1.74	± .0103	8.204	.69	XCVI
Shoulder width	6,289	42.89	16.88	24.94	2.15	± .0130	5.013	.85	CIX
Neck circumference	6,280	36.37	14.32	21.15	1.72	± .0103	4.729	.68	XCIV
Waist circumference	6,445	77.83	30.64	45.25	5.76	± .0342	7.401	2.27	CXXII
Transverse pelvic diameter	6,354	28.42	11.19	16.53	2.35	± .0140	8.269	.93	XCVII
Thigh circumference	6,367	54.08	21.29	31.45	3.72	± .0330	6.879	1.46	XXV
Suprapatella	6,443	37.61	14.81	21.87	2.43	± .0214	6.461	.96	CXXVI
Knee patella	6,444	36.52	14.38	21.24	1.99	± .0175	5.449	.78	CXXVII
Calf circumference	6,444	34.71	13.67	20.18	2.01	± .0125	5.791	.79	CXXVIII
Weight	3,319	[a] 67.83	[b] 149.53	[c] 32.65	[a] 8.00	± .1452	3.203	[b] 17.53	

[a] Kilograms. [b] Pounds. [c] $\frac{\text{Weight in pounds} \times 1{,}000.}{(\text{Height in inches.})^2}$

TABLE 105.—*Average dimensions in color races, demobilization, 1919.*

Dimension.	96,500 white.[a]	6,400 colored.[b]	22 Chinese.[c]	29 Japanese.[c]	106 Indians.[c]
Stature .... centimeters..	171.99	171.97	171.11	170.94	171.51
Weight .... pounds..	144.67	149.53	148.94	144.92	150.13
Index of build	31.56	32.65	32.82	32.00	32.93
Sitting height .... centimeters..	90.39	87.35	89.05	87.88	90.10
Span .... do....	175.58	180.76	176.41	177.25	176.86
Sternal notch .... do....	141.18	142.39	140.86	140.44	140.97
Pubic height .... do....	86.82	89.42	86.12	88.31	86.35
Knee height .... do....	47.08	47.26	46.20	46.71	46.97
Leg length .... do....	71.69	74.38	70.86	74.22	71.63
Arm length .... do....	78.42	80.56	....	....	....
Forearm .... do....	26.91	28.20	....	....	....
Chest circumference .... do....	88.79	87.99	....	....	....
Chest transverse .... do....	29.02	29.05	....	....	....
Chest antero-posterior .... do....	21.58	21.21	....	....	....
Shoulder width .... do....	41.81	42.89	42.67	42.00	42.58
Pelvic width .... do....	29.43	28.42	30.00	28.88	29.71
Neck circumference .... do....	35.98	36.37	....	....	....
Waist circumference .... do....	77.87	77.83	....	....	....
Thigh circumference .... do....	52.71	54.08	....	....	....
Suprapatella .... do....	37.34	37.61	....	....	....
Patella .... do....	36.21	36.52	....	....	....
Calf circumference .... do....	34.09	34.71	....	....	....

[a] See Table 103. [b] See Table 104. [c] See Table 107.

TABLE 106.—*Relative dimensions in color races, demobilization, 1919.*

[Percentage rates.]

Dimension.	White.	Colored.*	Indians.	Chinese.	Japanese.
$\frac{\text{Weight in lbs.}}{[\text{Stature (in.)}]^2}$	31.56	32.65	32.93	32.82	32.00
$\frac{\text{Sitting height (cm.)}}{\text{Stature (cm.)}}$	52.55	50.79	52.53	52.04	51.41
$\frac{\text{Sternal notch (cm.)}}{\text{Stature (cm.)}}$	82.09	82.80	82.19	82.32	82.15
$\frac{\text{Pubic height (cm.)}}{\text{Stature (cm.)}}$	50.47	52.00	50.35	50.33	51.66
$\frac{\text{Leg length (cm.)}}{\text{Stature (cm.)}}$	41.68	43.25	41.76	41.41	43.42
$\frac{\text{Knee height (cm.)}}{\text{Stature (cm.)}}$	27.38	27.48	27.39	27.00	27.33
$\frac{\text{Span (cm.)}}{\text{Stature (cm.)}}$	102.10	105.10	103.10	103.10	103.70
$\frac{\text{Shoulder width (cm.)}}{\text{Stature (cm.)}}$	24.31	24.94	24.83	24.94	24.57
$\frac{\text{Chest circumference (cm.)}}{\text{Stature (cm.)}}$	51.62	51.17	....	....	....
$\frac{\text{Chest circumference (cm.)}}{\text{Weight in lbs.}}$	61.37	58.84	....	....	....
$\frac{\text{Transverse chest (cm.)}}{\text{Antero-post. chest (cm.)}}$	134.48	136.96	....	....	....
$\frac{\text{Antero-post. chest (cm.)}}{\text{Stature (cm.)}}$	12.55	12.33	....	....	....
$\frac{\text{Waist circumference (cm.)}}{\text{Stature (cm.)}}$	45.28	45.25	....	....	....
$\frac{\text{Pelvic diameter (cm.)}}{\text{Stature (cm.)}}$	17.11	16.53	17.32	17.53	16.90
$\frac{\text{Thigh circumference (cm.)}}{\text{Stature (cm.)}}$	30.65	31.45	....	....	....
$\frac{\text{Calf circumference (cm.)}}{\text{Stature (cm.)}}$	19.82	20.18	....	....	....

TABLE 107.—*Comparative frequency distribution of measurements in color races at demobilization.*

SECTION A: HEIGHT.

Race	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	Mean height.
																												Cm.
Chinese	23						2				5	2	2	3	5	1	1	1	1									171.11
Japanese	32					1	2	1	2		5	1	3	1	8	6		1					1					170.94
Indian	107						4	2	9	7	11	10	11	9	12	9	7	9	5	2								171.51
½ Black	305				2	3	2	9	15	15	22	37	29	46	36	24	23	20	7	6	2	4	2				1	172.28
Total	467				2	4	10	12	26	22	43	50	45	59	61	40	31	31	13	8	2	4	3				1	171.96

SECTION B: WEIGHT.

Race.	Total.	Weight, in pounds. 100–109	110–119	120–129	130–139	140–149	150–159	160–169	170–179	180–189	190–199	200 and over.	Mean weight.
													Lbs.
Chinese	18		3	1	1	4	3	3	1	2			148.94
Japanese	24		2	2	7	2	6	4		1			144.92
Indian	103		2	8	19	26	21	12	8	6		1	150.13
½ Black	196	1	8	12	45	46	22	33	22	6		1	148.94
Number measured	341	1	15	23	72	78	52	52	31	15		2	149.02
Not measured	126												
Total	467												

SECTION C: SPAN.

Race.	Total.	Span, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196	Mean span.
																											Cm.
Chinese	23						1	1		1		1	1	1	3	4	1	3	3			3					176.41
Japanese	32			1			1			1	3	5	1		1	3		1	4	3	3	3			1	1	177.25
Indian	106						2	1	2	5	2	8	10	8	7	9	17	5	4	9	5	5	5		1	1	176.86
½ Black	305				1		1	6	2	6	1	5	14	17	18	28	26	35	34	28	20	15	16	14	5	13	180.84
Number measured	466			1	1		5	8	4	13	6	19	26	26	29	44	44	44	45	40	28	26	21	14	7	15	179.47
Not measured	1																										
Total	467																										

SECTION D: HEIGHT OF STERNAL NOTCH.

Race.	Total.	Height of sternal notch, in centimeters. 24–25	26–27	28–29	30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60–61	Mean sternal notch.
																					Cm.
Chinese	22			1	1	2			5	2	2	5	2	1		1					40.86
Japanese	32		2	1	1	1	3	3	1	3	6	1	6	2	2						40.44
Indian	107			1	6	10	4	12	11	10	16	10	8	10	7	1	1				40.97
½ Black	303	1	4	1	5	11	13	17	39	40	45	33	34	25	17	9	3	3	1	2	42.50
Number measured	464	1	6	4	13	24	20	32	56	55	69	49	50	38	26	11	4	3	1	2	41.93
Not measured	3																				
Total	467																				

TABLE 107.—*Comparative frequency distribution of measurements in color races at demobilization*—Continued.

SECTION E: SITTING HEIGHT.

Race.	Total.	Sitting height, in centimeters.												Mean sitting height.
		76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99	
														Cm.
Chinese	22				1	5	2	3	6	2	1	2		89.05
Japanese	32				3	4	9	6	7	2			1	87.88
Indian	105				4	3	16	21	28	16	11	5	1	90.10
½ Black	301		1	10	26	38	57	67	52	35	10	1	4	87.97
Number measured	460		1	10	34	50	84	97	93	55	22	8	6	88.50
Not measured	7													
Total	467													

SECTION F: HEIGHT OF PUBIC ARCH.

Race.	Total.	Pubic arch, in centimeters.																		Mean pubic height.
		72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99	100–101	102–103	104–105	106–107	
																				Cm.
Chinese	21				2	4	1	1	3	6	1	1	2							86.12
Japanese	32		1		1	2	4	2	4	2	5	3	6	2						88.31
Indian	105	1	1		5	10	14	12	21	11	15	9	4	1	1					86.35
½ Black	280	1	3	5	4	14	20	24	36	36	54	40	14	16	7	4	1		1	88.76
Number measured	438	2	5	5	12	30	39	39	64	55	75	53	26	19	8	4	1		1	88.02
Not measured	29																			
Total	467																			

SECTION G: LEG LENGTH.

Race.	Total.	Leg length, in centimeters. 60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	Mean leg measure.
																			Cm.
Chinese	22	......	......	2	5	2	3	3	3	3	1	......	......	......	......	......	......	......	70.86
Japanese	29	......	......	2	1	2	3	4	6	2	3	6	......	......	......	......	......	......	74.22
Indian	106	2	1	5	12	14	17	11	24	16	2	......	2	......	......	......	......	......	71.63
½ Black	301	2	5	3	19	27	38	47	48	38	33	20	7	8	5	......	......	1	74.05
Number measured	458	4	6	12	37	45	61	65	81	59	39	26	9	8	5	......	......	1	73.35
Not measured	9	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	467	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

SECTION H: KNEE HEIGHT.

Race.	Total.	Knee height, in centimeters. 38–39	40–41	42–43	44–45	46–47	48–49	50–51	52–53	54–55	56–57	58–59	60–61	Mean knee height.
														Cm.
Chinese	20	......	1	5	2	5	3	3	1	......	......	......	......	46.20
Japanese	29	......	......	4	4	12	4	4	1	......	......	......	......	46.71
Indian	102	2	4	11	29	11	20	11	7	4	2	1	......	46.97
½ Black	269	2	7	16	48	61	72	42	13	4	3	1	......	47.41
Number measured	420	4	12	36	83	89	99	60	22	8	5	2	......	47.20
Not measured	47	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	467	......	......	......	......	......	......	......	......	......	......	......	......	......

TABLE 107.—*Comparative frequency distribution of measurements in color races at demobilization*—Continued.

SECTION I: SHOULDER BREADTH.

Race.	Total.	Shoulder width, in centimeters.																	Mean shoulder width.
		34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
																			Cm.
Chinese	21						2	2	2	3	5	2	3	2					42.67
Japanese	31					1		7	7	4	5	3	2	2					42.00
Indian	104					2	5	11	15	22	13	17	11	4	2		2		42.58
½ Black	298	1			2	3	10	27	38	58	53	45	34	15	5	5	2		42.75
Number measured	454	1			2	6	17	47	62	87	76	67	50	23	7	5	4		42.65
Not measured	13																		
Total	467																		

SECTION J: TRANSVERSE PELVIC DIAMETER.

Race.	Total.	Transverse pelvic diameter, in centimeters.																			Mean hip.
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
																					Cm.
Chinese	22				2			2	3	1	2	1	3	2	1	1	3	1			30.00
Japanese	32				1		2	3	6	3	5	3	3	2	1	3					28.88
Indian	107	1				4	2	2	14	17	14	14	6	13	9	6	2	3			29.71
½ Black	304		2	1	2	5	13	36	35	60	57	39	22	13	13	2	2	1		1	28.55
Number measured	465	1	2	1	5	9	17	43	58	81	78	57	34	30	24	12	7	5		1	28.91
Not measured	2																				
Total	467																				

20. GENERAL COMPARISON OF OTHER COLOR RACES.

Unfortunately the numbers of Indians, Chinese, and Japanese measured were so small that the value of the comparison of the measurement for them with whites and Negroes is much reduced (Table 105). Nevertheless, some results are fairly clear. Of all three races the Indians are the tallest and the Japanese the shortest, but the height of Indians averaged less than that of the white or Negro troops. In average weight and build the Indians exceeded any other race. Next to the whites the Japanese have the lowest index of build. The sitting height of the Indians exceeded that of any of the color races except white, despite the fact that their stature is inferior to that of the Negroes. Their leg length is less than that of whites, Negroes, and Japanese, but greater than that of the Chinese. The shoulder width is greater than that of whites and less than that of Negro troops. The pelvic width of the Indians is greater than that of any of the other races, except the Chinese. On the whole, the 106 Indians measured resembled, in their proportions, more the 22 Chinese measured than any other race.

A comparison of the *relative* dimensions of the color races (Table 106) offers points of interest. The Negro troops have the stockiest build, the Indians come next, and the whites are last. The white troops have the relative largest sitting height (trunk, head, and neck), the Indians about the same, and the Negro troops least. The relative height of the sternal notch is greatest in the Negro troops and least in white troops. Pelvic height also is greatest in Negro troops and less in Indians and Chinese than in the whites; the whites are intermediate in leg length. The white troops have the relatively shortest span and the Negro troops have the longest. The relative shoulder width is greatest in Negro and Chinese troops and least in white. The relative transverse pelvic diameter is least in the Negro troops and greatest in the Chinese. The chest of the Negro troops is more elliptical on cross section than that of the whites.

TABLE 108.—*Comparative measurements at demobilization, Civil and World Wars.*

WHITE TROOPS.

Measurements.	Number of men measured.	Mean.	Remarks.[b]
Height (demobilization, 1919)	96,596	67.72	
Sitting height:			
Gould[a]	10,876	36.08	Sitting height is made up of head and neck 9.94+ body length 26.16; pages 253 and 255.
Demobilization, 1919	96,239	35.59	
Pubic height:			
Gould[a]	1,061	33.27	Sailors; pages 290 and 291.
Demobilization, 1919	91,365	34.18	
Leg length:			
Gould[a]	10,876	28.49	Leg length is the difference between the total leg length 31.06, and the thickness of the foot, 2.57; pages 257 and 274.
Gluteal fold to apex internal malleolus (demobilization, 1919).	76,141	28.22	
Knee height:			
Gould[a]	10,848	18.61	Knee height; page 258.
Demobilization, 1919	76,141	18.54	
Chest circumference:			
Gould[a]	10,874	34.49	Chest circumference; page 263.
Demobilization, 1919	95,867	34.96	
Neck circumference:			
Gould[a]	9,300	13.63	Neck circumference; page 260.
Demobilization, 1919	95,271	14.16	
Waist circumference:			
Gould[a]	10,876	31.47	Waist circumference; page 266.
Demobilization, 1919	96,157	30.66	
Weight:			
Gould[a]	10,757	141.38	Weight; Table III, page 403.
Draft, 1917-1918	873,159	141.54	
Demobilization, 1919	79,706	144.67	
Height:			
Volunteer recruits (Gould)[a]	1,104,841	67.64	Height, white and colored; Table VI, page 105.
Draft, 1917-1918	873,159	67.49	
Baxter	501,068	67.30	Height, white and colored draft recruits; Baxter, Volume I, page 23.

NEGRO TROOPS.

Measurements.	Number of men measured.	Mean.	Remarks.[b]
Height (demobilization, 1919)	6,441	67.70	
Sitting height:			
Gould[a]	6,441	34.11	Sitting height is made up of head and neck 9.62 +body length 24.49; page 299.
Demobilization, 1919	6,443	34.39	
Pubic height:			
Gould[a]	2,020	34.30	Pubic height; pages 299 and 300.
Demobilization, 1919	6,220	35.21	
Leg length:			
Gould[a]	2,020	29.43	Leg length is the difference between the total leg length, 32.10, and the thickness of the foot, 2.57; Table V, pages 303 and 305.
Gluteal fold to apex internal malleolus (demobilization, 1919).	5,595	29.28	
Knee height:			
Gould[a]	2,020	19.14	Knee height; Table V, page 314.
Demobilization, 1919	5,725	18.61	
Chest circumference:			
Gould[a]	2,020	34.28	Chest circumference; Table V, page 304.
Demobilization, 1919	6,355	34.64	
Neck circumference:			
Gould[a]	2,020	13.92	Neck circumference; Table V, page 304.
Demobilization, 1919	6,280	14.32	
Waist circumference:			
Gould[a]	2,020	30.30	Waist circumference; Table V, page 304.
Demobilization, 1919	6,445	30.64	
Weight:			
Gould[a]	2,001	144.58	Weight; Table I, page 402.
Demobilization, 1919	3,319	149.53	

[a] Demobilization, 1865 (Gould, 1869).

[b] Except where specified the references are to Gould.

21. COMPARISON OF THE SOMATIC PROPORTIONS IN THE EIGHT EUROPEAN RACES.

(*a*) *General discussion.*—The number of races in the United States of which representatives were measured at demobilization is very great. Provision was made in coding for some 78 countries and subdivisions of the populations of countries. But when the final results were tabulated it was found that there were only eight of the European nations native-born representatives of which were included in our statistics in sufficient frequency to make the analysis worth while. These races are:

TABLE 109.—*Approximate number of men measured in 8 European races, demobilization, 1919.*

Race.	Approximate number of men measured.	Race.	Approximate number of men measured.
English	4,204	French	1,457
Scotch	2,074	Italian	3,519
Irish	6,164	Polish	2,408
German	7,077	Hebrew	1,692

For the above races the principal dimensions as given in Table 110 were drawn up.

TABLE 110.—*Absolute dimensions in 8 European races, demobilization, 1919.*

Dimension.	English.	Scotch.	Irish.	German.	French.	Italian.	Polish.	Hebrew.
Number men measured	4,204	2,074	6,164	7,077	1,457	3,519	2,408	1,692
Height ..cm..	172.08	172.54	171.36	172.04	168.59	165.18	169.41	166.91
Weight ..lbs..	144.98	144.93	142.96	148.20	142.16	137.99	145.62	137.85
Index of build	31.59	31.41	31.41	32.31	32.37	32.63	32.73	31.93
Sitting height ..cm..	90.63	90.75	90.46	90.36	89.47	87.76	89.42	88.06
Span ..cm..	175.61	175.60	174.10	176.66	172.85	169.19	174.60	170.30
Sternal notch ..cm..	140.87	141.53	142.28	141.19	137.88	135.37	139.15	136.93
Pubic height ..cm..	87.19	87.30	86.55	86.63	85.80	82.81	85.27	83.94
Knee height ..cm..	47.74	47.83	46.59	47.22	46.83	45.13	46.69	45.57
Leg length ..cm..	71.34	71.68	70.91	71.47	69.22	67.84	70.16	68.93
Chest circumference ..cm..	88.18	88.57	88.67	89.52	88.49	88.87	90.42	87.53
Transverse chest ..cm..	28.87	29.01	28.77	29.12	28.58	28.76	29.22	28.25
Antero-posterior chest ..cm..	21.45	21.58	21.60	21.79	21.39	21.48	21.90	21.42
Shoulder width ..cm..	41.69	41.70	41.43	42.19	40.41	41.64	42.24	41.42
Pelvic width ..cm..	29.28	29.38	28.92	29.80	28.70	28.62	29.55	28.34
Waist circumference ..cm..	76.69	77.53	77.70	78.46	77.32	77.16	78.38	76.71
Thigh circumference ..cm..	52.38	52.36	52.27	53.19	51.98	52.03	52.46	52.18
Calf circumference ..cm..	33.90	34.04	33.83	34.40	33.68	33.71	34.44	33.66
Flaxen hair ..per 1,000..	55.05	52.81	37.80	68.49	27.19	6.02	75.77	16.01
Light brown hair ..per 1,000..	235.70	228.85	188.54	306.08	138.77	59.06	333.47	110.31
Clear red hair ..per 1,000..	13.82	20.05	25.42	6.79	7.67	1.72	7.08	8.90
Clear blue eyes ..per 1,000..	441.57	477.29	533.70	426.14	342.90	111.59	468.50	230.86

(*b*) *Stature.*—Table 25 gives the proportional distribution of different classes of stature. In order of mean stature the Scotch stand first, 172.54 centimeters. They are followed by the English, 172.08; German, 172.04; Irish, 171.36; Polish, 169.41; French, 168.59; Hebrews, 166.91; and Italians, 165.18. The standard deviation in stature is least in the Italians (probably because they are shortest) and greatest in the English, indicating a great admixture of race statures in that people. Other high standard deviations are: German, 6.61; French, 6.50. Next to the Italians in limited stature variability stand the Polish with a standard deviation of 6.12, and the Hebrews with 6.20. The Irish have a standard deviation of 6.31, and the Scotch of 6.39.

Corresponding to their tall stature, we find among the Scotch a larger proportion of men of stature class 172–173 centimeters than among any other people. Indeed, this constitutes the modal class for the Scotch. For the English 170–171 is the modal class and the same holds for the German, Irish, Polish, and French. For Hebrews and Italians, however, the modal class is 164–165 centimeters. Using the English system of measures, the average stature of the Scotch is about 68 inches (172.54 centimeters), of the Italians 65 inches (165.18 centimeters).

(*c*) *Weight.*—Table 37 gives the distribution of absolute weights and the relative proportion of the different weight classes for the eight European races.

From Table 110 we learn that though the Scotch have the tallest average stature they have not the greatest average weight. This greatest average weight is found in the Germans, 148.20 pounds; second in order come the Polish, 145.62 pounds; then the English and Scotch, respectively, 144.98 and 144.93 pounds; the Irish, 142.96 pounds; French, 142.16 pounds; and at the bottom of the list the Hebrews and Italians, respectively, 137.85 and 137.99 pounds.

In variability of weight the Scotch (standard deviation 17.41) stand at the top, followed by the English, Irish, and Germans. The Polish stand at the bottom of the list (standard deviation 15.29), with Italians, French, and Hebrews above.

(*d*) *Index of build.*—The index of build of the eight races is obtained by dividing the mean weight by the square of the mean stature.

TABLE 111.—*Index of build in eight European races, obtained by dividing weight by stature and by the square of stature, demobilization, 1919.*

Race.	$\frac{\text{Weight} \times 1{,}000}{\text{Stature}^2}$	$\frac{\text{Weight}}{\text{Stature}}$
Polish	32.73	2.183
Italian	32.63	2.122
German	32.31	2.188
French	32.37	2.142
Hebrew	31.93	2.098
English	31.59	2.140
Scotch	31.41	2.134
Irish	31.41	2.119

Table 111 gives the index of build, using both the first and second powers of the statures as divisors. The races are arranged in order of the quotient of weight divided by stature squared. It appears from this calculation that the Polish have the largest index of build, followed in order by the Italians, Germans, French, Hebrew, English, Scotch, and Irish. If it is contended that the larger races are given an unduly small index of build, due to the squaring of the stature, a comparison may be made of the weight divided by the first power of the stature, in which the order of robustness is German, Polish, French, English, Scotch, Italian, Irish, and Hebrew. From other evidence it seems probable that the first series is the more significant.

(*e*) *Summary.*—Without calling attention in detail to all the striking results shown in Tables 110 and 111, it may be said in summary that in absolute dimensions of the five groups—Scotch, English, Irish, German, and Polish—the Scotch lead in stature, sitting height, pubic height, knee height, and leg length—thus in vertical dimensions. The English are usually second in these respects. The Poles are first in horizontal dimensions—in index of build, chest circumference, shoulder width, and calf circumference. The Germans are first in absolute weight and second in the horizontal dimensions, but not in index of build.

Of the four groups—Polish, French, Hebrew, and Italian—the Poles are in a class by themselves in absolute dimensions. The French are next, being first in sitting height, pubic and knee heights, and second in the other dimensions. The Italian group stands first in nothing; they are mostly inferior in absolute vertical dimensions to the Hebrews but exceed them in horizontal ones, such as index of build and dimensions of chest, shoulder width, and calf circumference.

TABLE 112.—*Relative dimensions in eight European races, demobilization, 1919.*[a]

[Per cent rates.]

Dimensions.	English.	Scotch.	Irish.	German.	French.	Italian.	Polish.	Hebrew.
Weight, in pounds / Stature[a] (inches)	31.59	31.41	31.41	32.31	32.27	32.63	32.73	31.92
Sitting height / Stature	52.67	52.60	52.79	52.52	53.07	53.13	52.78	52.76
Sternal notch / Stature	81.86	82.03	83.03	82.07	81.78	81.95	82.14	82.04
Pubic height / Stature	50.67	50.60	50.51	50.35	50.89	50.14	50.33	50.29
Leg length / Stature	41.46	41.54	41.38	41.54	41.06	41.07	41.41	41.30
Knee height / Stature	27.74	27.72	27.19	27.45	27.78	27.32	27.56	27.30
Span / Stature	102.10	101.80	101.60	102.70	102.60	102.40	103.10	102.00
Shoulder width / Stature	24.23	24.17	24.18	24.52	23.97	25.21	24.93	24.82
Chest circumference / Weight (in pounds)	60.82	61.11	62.02	60.40	62.25	64.40	62.09	63.50
Transverse chest / Antero-posterior chest	134.59	134.43	133.19	133.64	133.61	133.89	133.49	131.88
Antero-posterior chest / Stature (pounds)	12.47	12.51	12.61	12.67	12.69	13.00	12.93	12.83
Waist circumference / Stature (pounds)	44.57	44.93	45.34	45.61	45.86	46.71	46.27	45.96
Pelvic diameter / Stature	17.02	17.03	16.88	17.32	17.02	17.33	17.44	16.98
Thigh circumference / Stature	30.44	30.35	30.50	30.92	30.83	31.50	30.97	31.26
Calf circumference / Stature	19.70	19.73	19.74	20.00	19.98	20.41	20.33	20.17

[a] Unless specified all measurements are in centimeters.

In relative dimensions (Table 112) in the five groups—Scotch, English, Irish, Germans, and Polish—it appears that the Polish stand first in all relative horizontal dimensions and the Germans second. In many of such dimensions the English stand last, as the most slender, although the Scotch and Irish are close competitors for this place. Of relative vertical dimensions the English stand first in relative pubic and knee height, the Irish in relative sitting height and sternal notch, and the Scotch and German in leg length. On the other hand, the Irish stand at the bottom in leg dimensions, and the Germans at or near the bottom in relative sitting and pubic heights. In build the Poles are first and the Scotch and Irish last. The Irish chest is most nearly cylindrical (infantile) and the English flattest.

In the four groups—Polish, French, Hebrew, and Italian—the Italians are first in relative horizontal dimensions, while the Poles are frequently last. In relative vertical dimension the Poles are first in sternal height, while the French exceed in relative pubic height and knee height. The Hebrews are last in relative sitting height and knee height. The chest rotundity decreases from the Hebrews, through Polish, and French to Italians, who are in this group the most like the English in this respect.

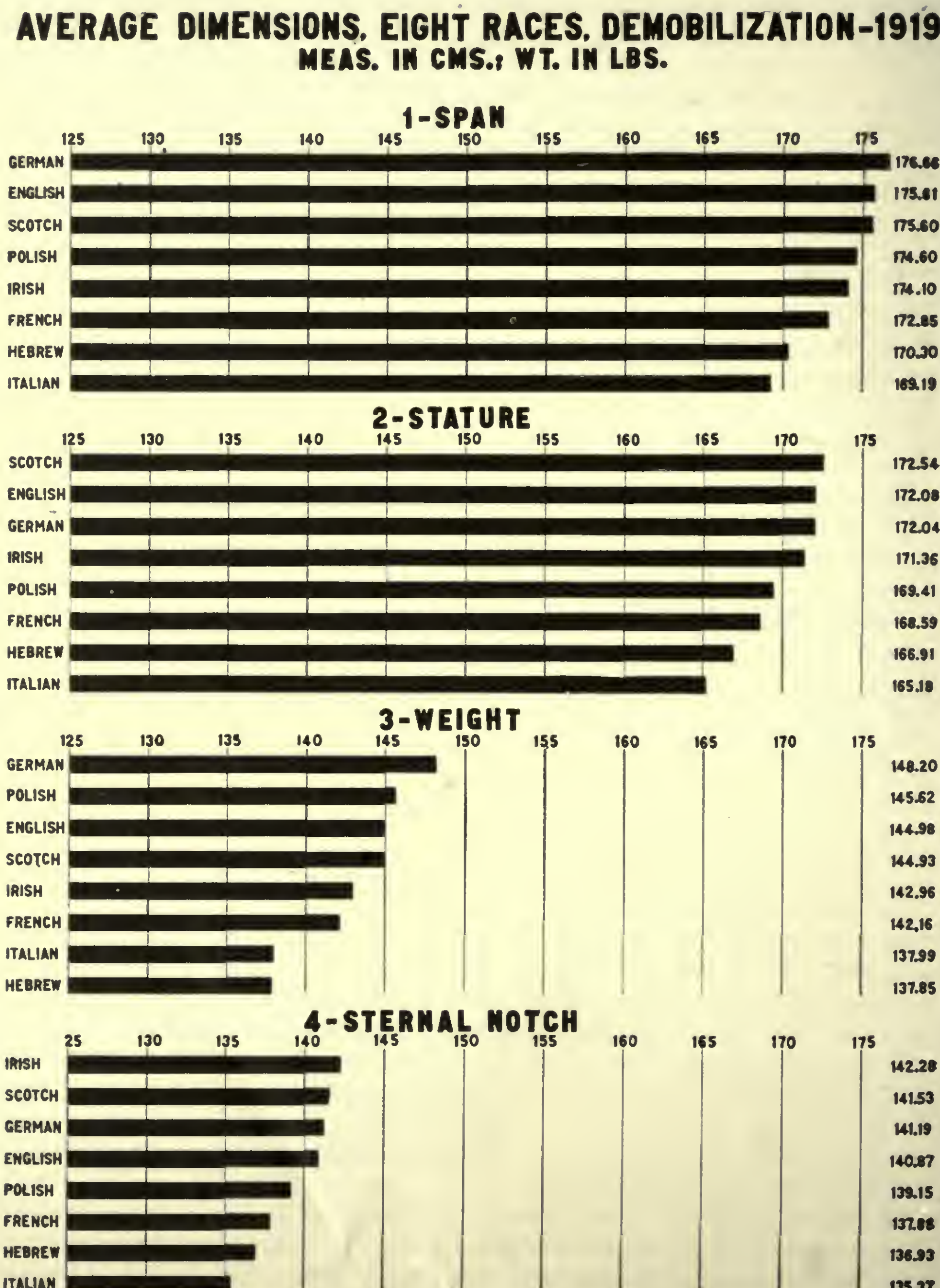
AVERAGE DIMENSIONS, EIGHT RACES, DEMOBILIZATION-1919
MEAS. IN CMS.; WT. IN LBS.
1-SPAN
125 130 135 140 145 150 155 160 165 170 175
GERMAN 176.66
ENGLISH 175.81
SCOTCH 175.60
POLISH 174.60
IRISH 174.10
FRENCH 172.85
HEBREW 170.30
ITALIAN 169.19
2-STATURE
125 130 135 140 145 150 155 160 165 170 175
SCOTCH 172.54
ENGLISH 172.08
GERMAN 172.04
IRISH 171.36
POLISH 169.41
FRENCH 168.59
HEBREW 166.91
ITALIAN 165.18
3-WEIGHT
125 130 135 140 145 150 155 160 165 170 175
GERMAN 148.20
POLISH 145.62
ENGLISH 144.98
SCOTCH 144.93
IRISH 142.96
FRENCH 142.16
ITALIAN 137.99
HEBREW 137.85
4-STERNAL NOTCH
25 130 135 140 145 150 155 160 165 170 175
IRISH 142.28
SCOTCH 141.53
GERMAN 141.19
ENGLISH 140.87
POLISH 139.15
FRENCH 137.88
HEBREW 136.93
ITALIAN 135.37

PLATE XXII.

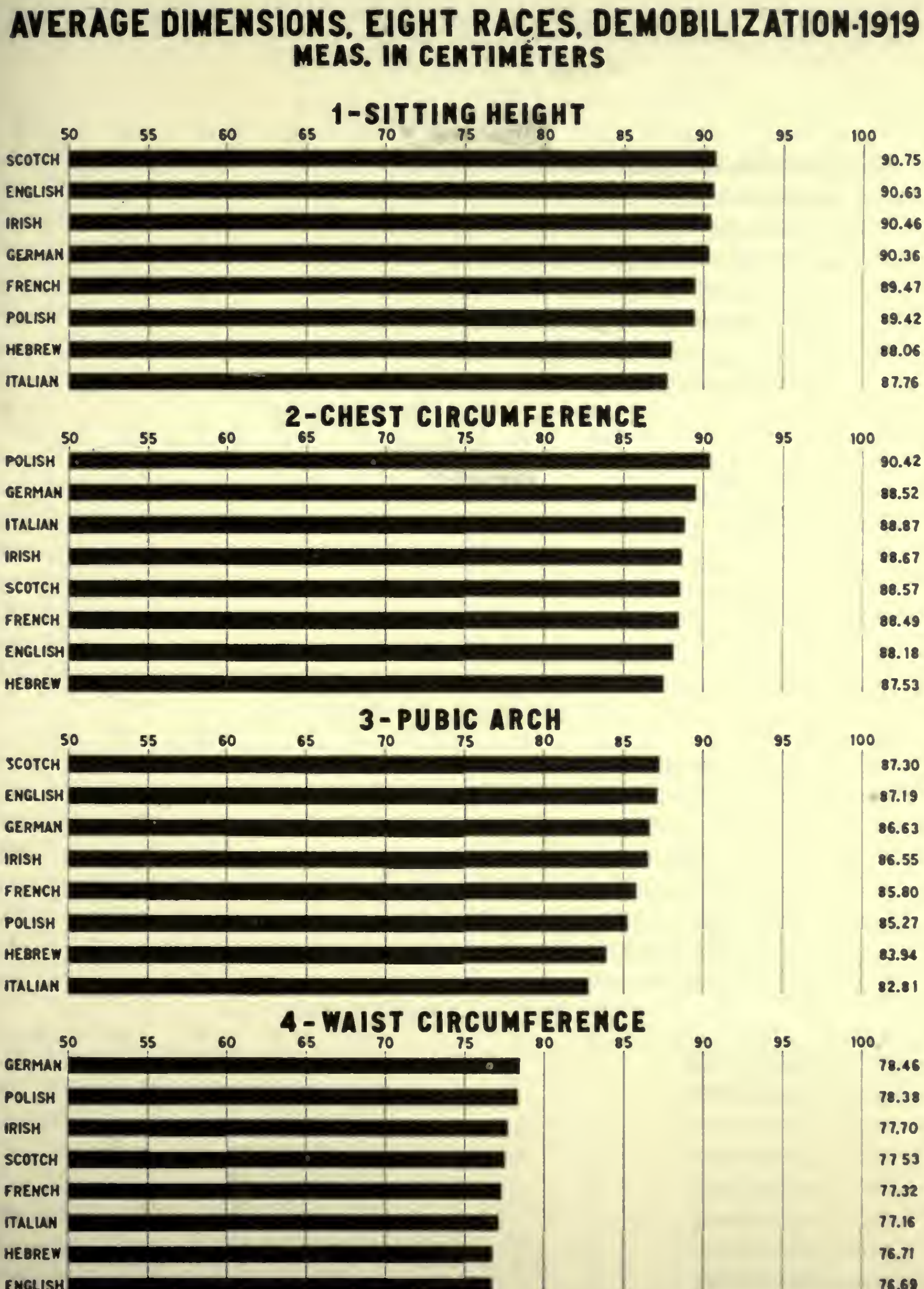
AVERAGE DIMENSIONS, EIGHT RACES, DEMOBILIZATION-1919
MEAS. IN CENTIMETERS
1-SITTING HEIGHT
50 55 60 65 70 75 80 85 90 95 100
SCOTCH 90.75
ENGLISH 90.63
IRISH 90.46
GERMAN 90.36
FRENCH 89.47
POLISH 89.42
HEBREW 88.06
ITALIAN 87.76
2-CHEST CIRCUMFERENCE
50 55 60 65 70 75 80 85 90 95 100
POLISH 90.42
GERMAN 88.52
ITALIAN 88.87
IRISH 88.67
SCOTCH 88.57
FRENCH 88.49
ENGLISH 88.18
HEBREW 87.53
3-PUBIC ARCH
50 55 60 65 70 75 80 85 90 95 100
SCOTCH 87.30
ENGLISH 87.19
GERMAN 86.63
IRISH 86.55
FRENCH 85.80
POLISH 85.27
HEBREW 83.94
ITALIAN 82.81
4-WAIST CIRCUMFERENCE
50 55 60 65 70 75 80 85 90 95 100
GERMAN 78.46
POLISH 78.38
IRISH 77.70
SCOTCH 77 53
FRENCH 77.32
ITALIAN 77.16
HEBREW 76.71
ENGLISH 76.69

PLATE XXIII.

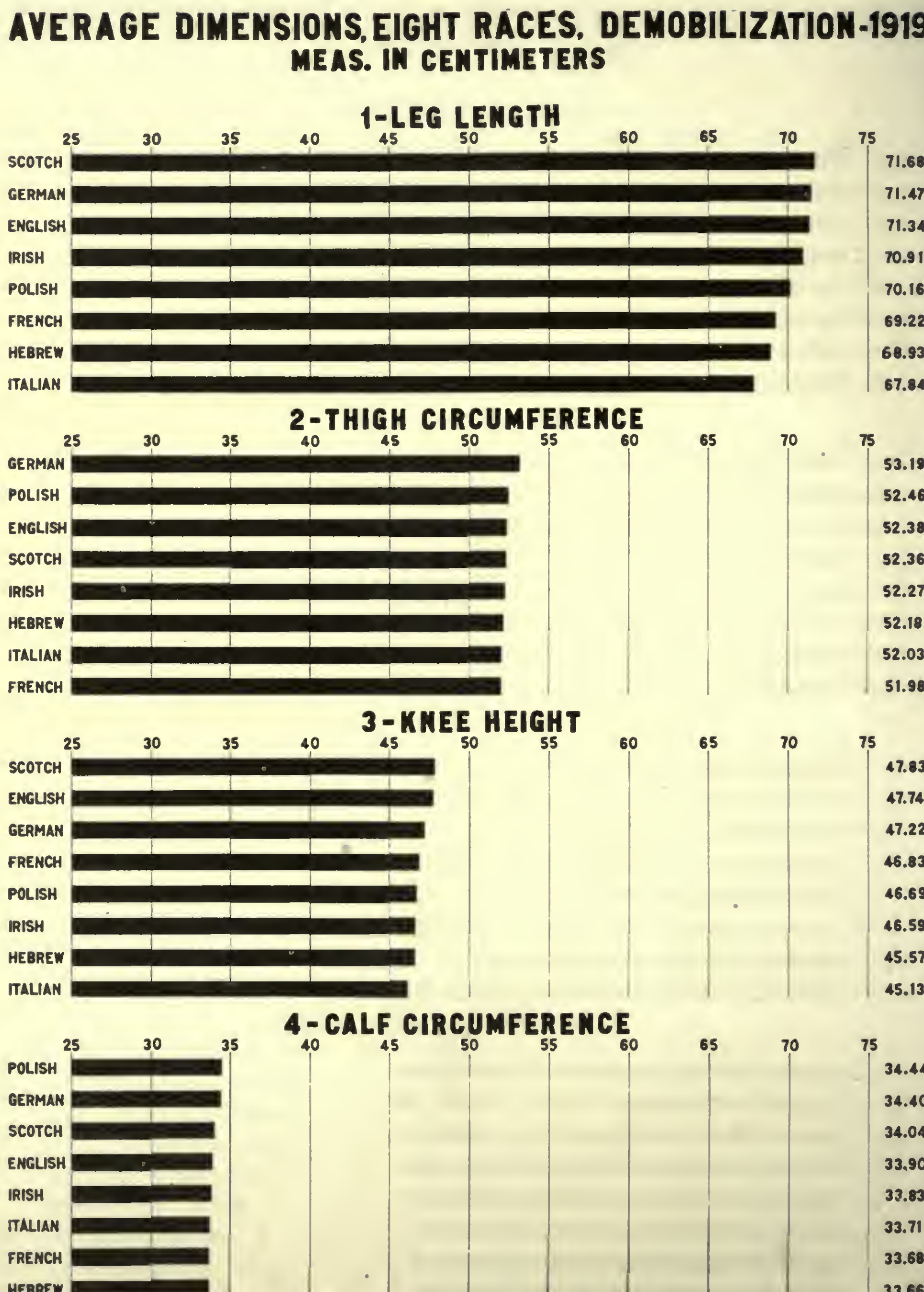
AVERAGE DIMENSIONS, EIGHT RACES, DEMOBILIZATION-1919
MEAS. IN CENTIMETERS
1-LEG LENGTH
25 30 35 40 45 50 55 60 65 70 75
SCOTCH 71.68
GERMAN 71.47
ENGLISH 71.34
IRISH 70.91
POLISH 70.16
FRENCH 69.22
HEBREW 68.93
ITALIAN 67.84
2-THIGH CIRCUMFERENCE
25 30 35 40 45 50 55 60 65 70 75
GERMAN 53.19
POLISH 52.46
ENGLISH 52.38
SCOTCH 52.36
IRISH 52.27
HEBREW 52.18
ITALIAN 52.03
FRENCH 51.98
3-KNEE HEIGHT
25 30 35 40 45 50 55 60 65 70 75
SCOTCH 47.83
ENGLISH 47.74
GERMAN 47.22
FRENCH 46.83
POLISH 46.69
IRISH 46.59
HEBREW 45.57
ITALIAN 45.13
4-CALF CIRCUMFERENCE
25 30 35 40 45 50 55 60 65 70 75
POLISH 34.44
GERMAN 34.40
SCOTCH 34.04
ENGLISH 33.90
IRISH 33.83
ITALIAN 33.71
FRENCH 33.68
HEBREW 33.66

PLATE XXIV.

AVERAGE DIMENSIONS, EIGHT RACES, DEMOBLIZATION-1919
MEAS. IN CENTIMETERS

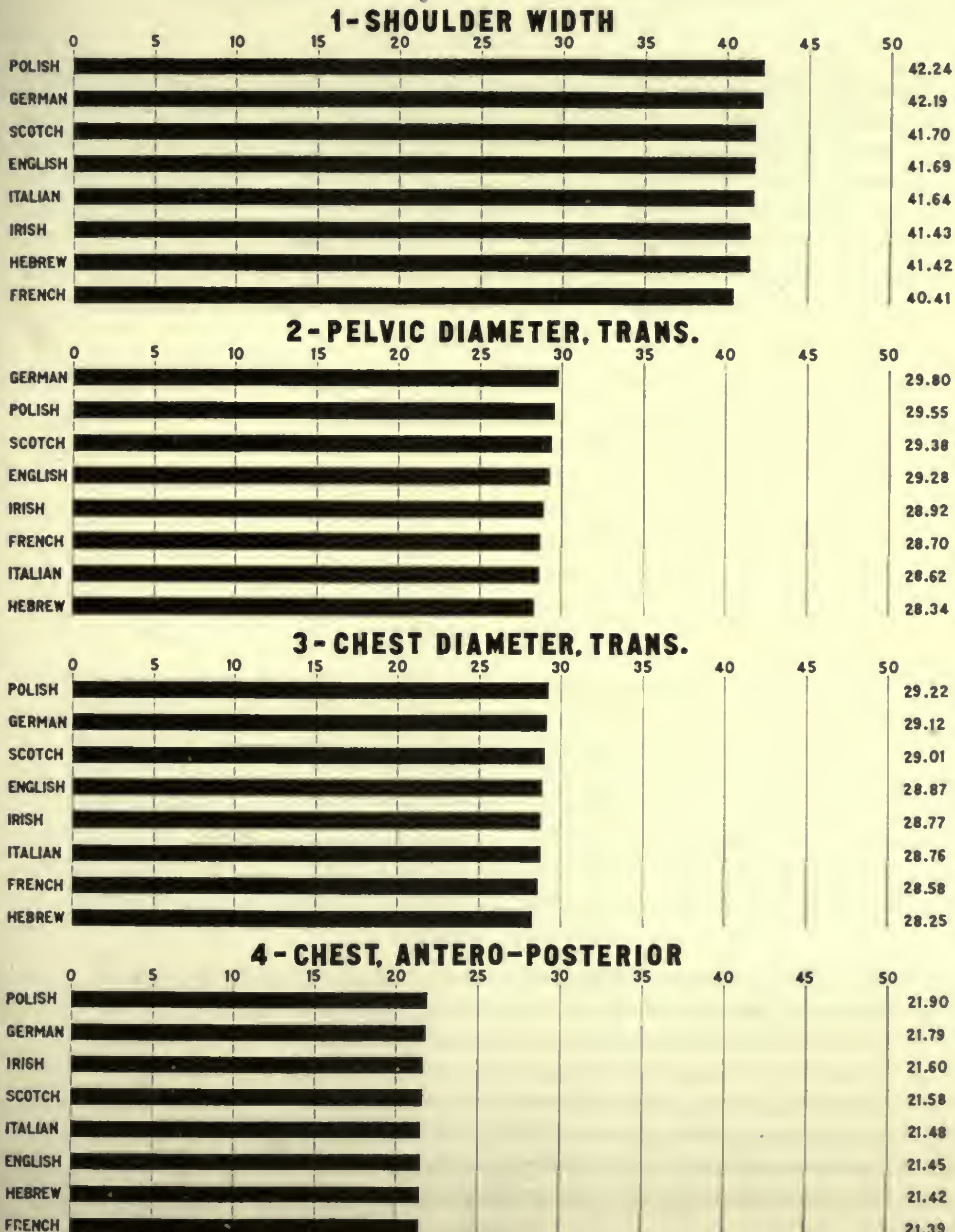

PLATE XXV.

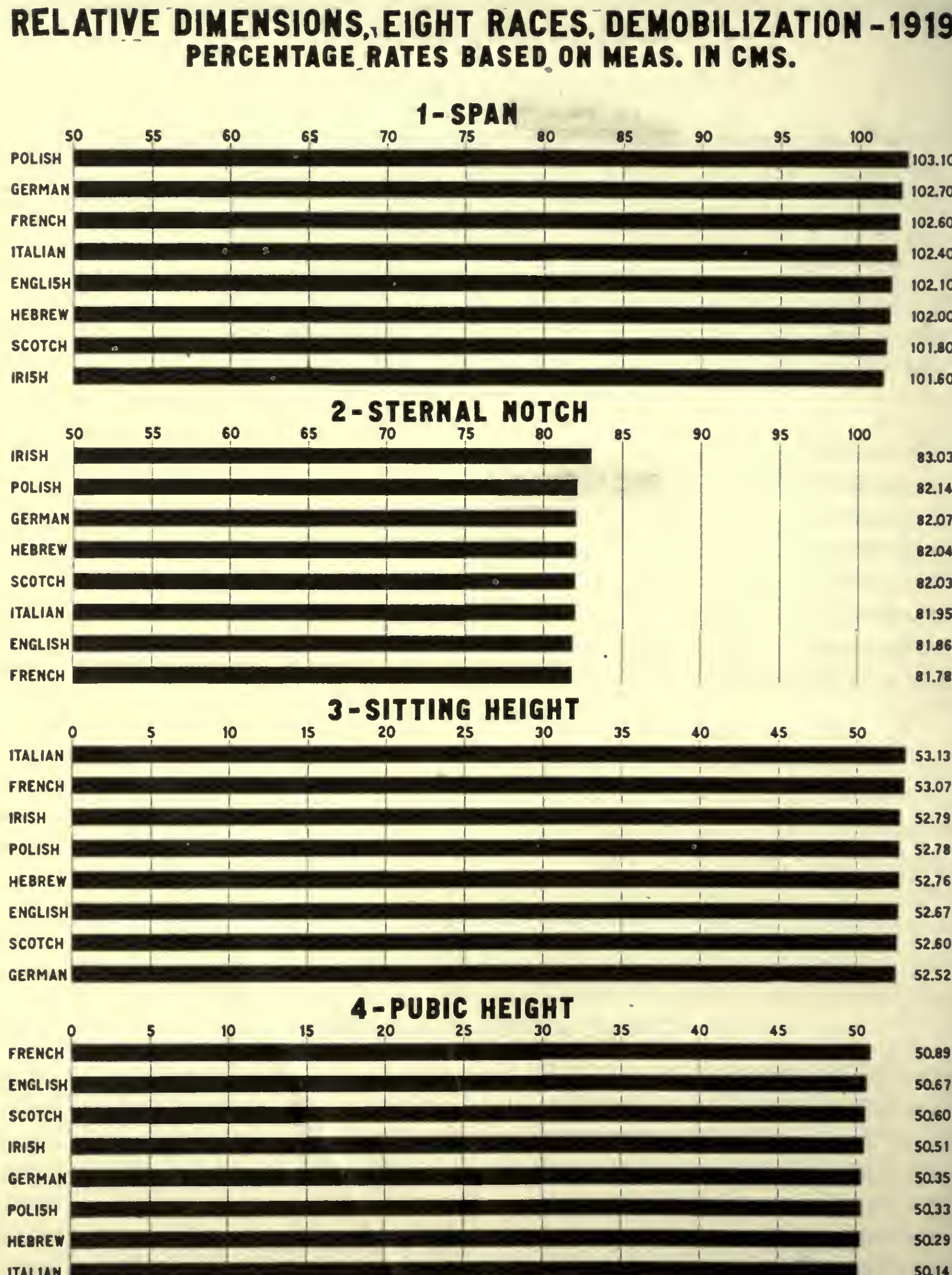
RELATIVE DIMENSIONS, EIGHT RACES, DEMOBILIZATION - 1919
PERCENTAGE RATES BASED ON MEAS. IN CMS.
1-SPAN
POLISH 103.10
GERMAN 102.70
FRENCH 102.60
ITALIAN 102.40
ENGLISH 102.10
HEBREW 102.00
SCOTCH 101.80
IRISH 101.60
2-STERNAL NOTCH
IRISH 83.03
POLISH 82.14
GERMAN 82.07
HEBREW 82.04
SCOTCH 82.03
ITALIAN 81.95
ENGLISH 81.86
FRENCH 81.78
3-SITTING HEIGHT
ITALIAN 53.13
FRENCH 53.07
IRISH 52.79
POLISH 52.78
HEBREW 52.76
ENGLISH 52.67
SCOTCH 52.60
GERMAN 52.52
4-PUBIC HEIGHT
FRENCH 50.89
ENGLISH 50.67
SCOTCH 50.60
IRISH 50.51
GERMAN 50.35
POLISH 50.33
HEBREW 50.29
ITALIAN 50.14

PLATE XXVI.

RELATIVE DIMENSIONS, EIGHT RACES, DEMOBILIZATION-1919
PERCENTAGE RATES BASED ON MEAS. IN CMS.

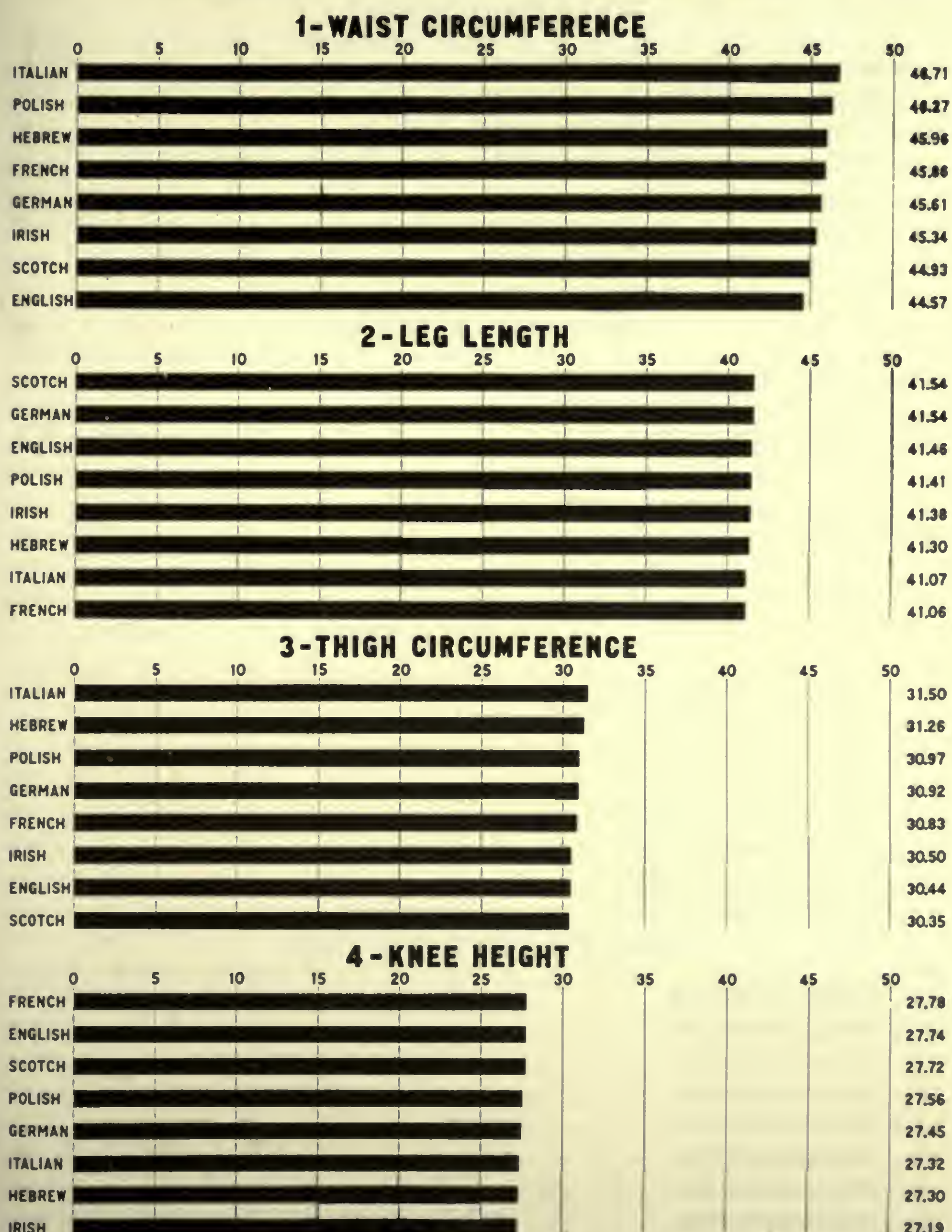

PLATE XXVII.

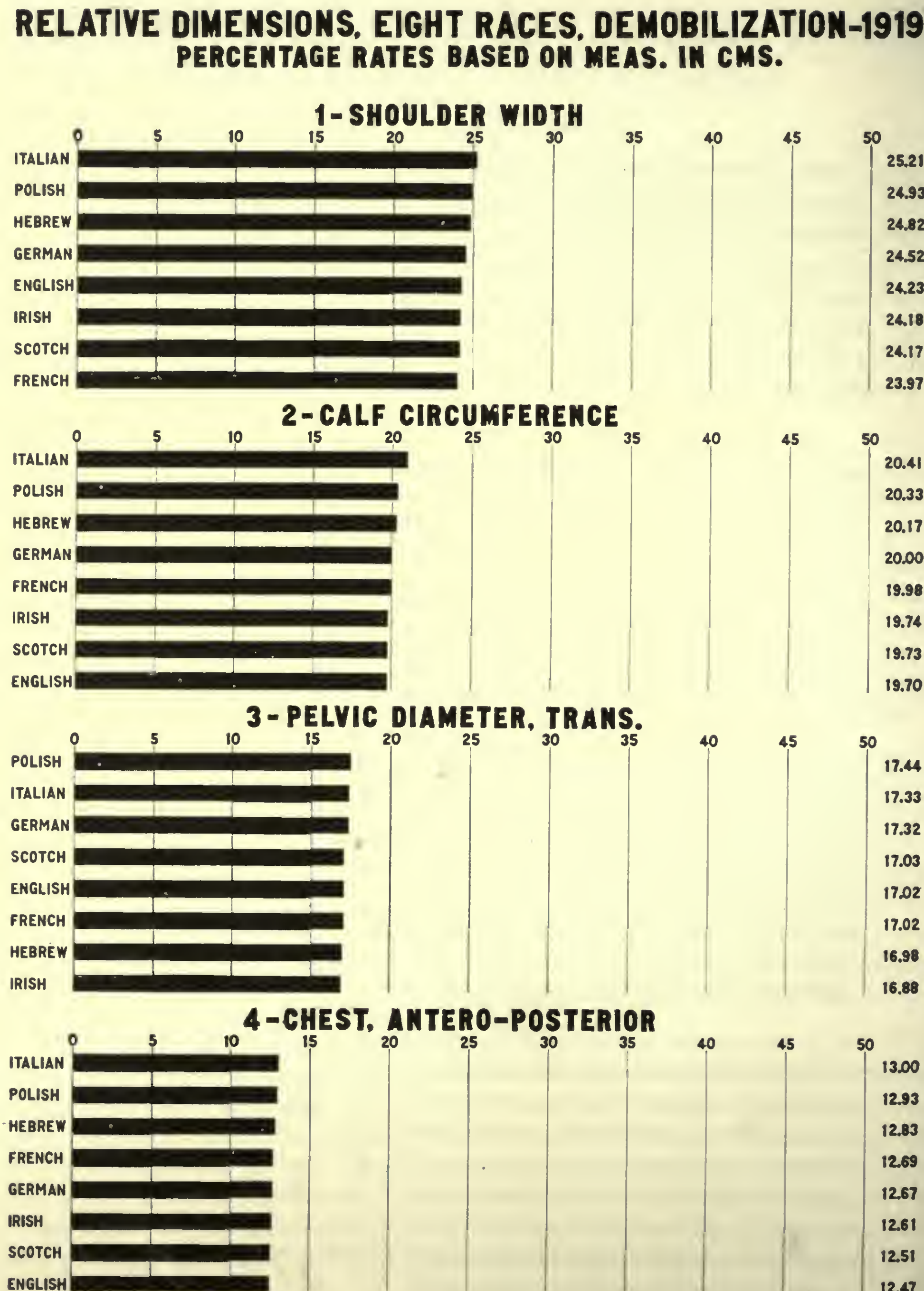

PLATE XXVIII.

E. CORRELATIONS BETWEEN MEASUREMENTS.

1. CORRELATIONS BETWEEN MEASUREMENTS FOR WHITE AND NEGRO TROOPS.

(*a*) *General description of tables.*—From the foregoing sections it is clear that height, weight, and chest circumference are not independent, but, on the contrary, closely interdependent measurements. In order to understand the law of their associations, it is necessary to apply correlation tables. Such correlation tables are given in Tables I, II, and III. Table I shows the correlation between stature and weight. It answers the question, How were the weights of men of the stature of 59 inches distributed; how those of the stature of 60, 61, and 62 inches, etc.? The distribution of weights for men of different stature is given by reading in horizontal lines across the table. The table also gives the relation between the different statures of men for a given weight. It answers the question, What proportion of men weighing 105–109 pounds are 60 inches, 61, 62 inches, etc., tall? The distribution of statures among men of a given weight is given by reading down in the vertical columns. It will be observed that the entries become larger in the middle of the table; this is because men of medium stature and medium weight are much commoner than those of extreme stature or those of extreme weight. Thus, in Table I the largest entry is 18,930, which means that that number of men out of 868,445 had a stature about 67 inches and 135–139, inclusive, pounds. This combination was then the commonest one among the early recruits into the United States Army.

Table I answers the question, What proportions of men of a given stature, such as 69 inches, fall into each of the different classes of weight? These proportions per 1,000 are obtained by reading along the horizontal lines. Table I answers the question, What proportions of men of different classes of weight, as for instance 145–149 pounds, fall into each of the different classes of stature? The answer is given again by reading along the horizontal lines. It must be remembered in applying these tables that the frequencies in the extreme classes fail to give a good picture of the distribution of weights and statures in that part of the population. This is because there was a selection against men of under 63 inches, and this selection was especially marked in the case of men under 60 inches tall. A few short men were taken, provided they had an exceptionally fine physique, were especially robust, and had a relatively high weight. Consequently we actually find a larger proportion of men of 59 inches with a weight of 125–129 pounds than we do of men of 60 inches. Similarly for selected men of 60 inches, the most frequent weight was between 115–119 pounds, which is the same as the most frequent weight for men of 61 or even 62 inches. This shows that even for men of 60 inches a disproportionately large number of lightweights were rejected. On the other hand, few men were accepted who were 76 inches tall. Some such were indeed accepted if they were not obese, so it occurs that the proportion of men weighing 115–119 pounds actually increases as the stature increases from 74 to 79 inches. This shows that as the stature increased there was a tendency to reject a disproportionately larger number of heavy men. The same thing is shown in the men of the weight of 120–124 pounds. Between the limits of 62 inches and 75 inches and 100 and 199 pounds, inclusive, the table represents, however, nearly the conditions found in the general population.

(*b*) *Correlations between stature and weight.*—By means of a mathematical treatment proposed by Francis Galton and elaborated by Karl Pearson, it is possible to find a single numerical expression for the correlation between pairs of dimensions related like stature and weight. By applying the proper mathematical formula it is determined that the correlation of stature to weight (using the entire Table I) is 0.4810. This may be interpreted as indicating that as there is an increase of one stature class, there tends to be an increase of about 0.48, on the average, of the weight class. If the correlation were perfect, any one height class would be accompanied by only one correlated weight class, but it is clear that this is not the case, that the weights of men of successive classes are very variable, and, as weight increases with the increase of stature, that there is a tendency for the individuals to mass themselves around a central point in the table. For English undergraduates a corresponding correlation has been found of the value 0.49 (Pearson, 1899).

The coefficient of correlation, 0.48, is a fairly high one, as correlations go. The relation between breadth and length in a collection of German skulls has been found to be 0.49. The relation between capacity and breadth of German skulls has been placed at 0.67. The relation of length of radius and stature is about 0.70, whereas that for arm and stature is only 0.37, and clavicle and scapula, 0.12 to 0.16.

Table I gives for each class of stature the mean weight. This table is of interest in comparison with the statistics obtained by Gould [2] at the end of the Civil War and given in his Table IX (p. 408). This Table IX is indeed for white men only, whereas our Table I includes about 6 per cent colored. In Gould's table half inches are tabulated as well as whole inches, and in order to make comparison with our table it is necessary to combine the half inch with the following full inch in his table. It has been done in our Table 113, which shows in parallel columns the average weight of men of a given height, 1866 and 1917–1918.

TABLE 113.—*Comparative weight of men of different statures among white soldiers of 1865 at demobilization and white and colored soldiers at demobilization, 1919.*

Height, in inches.	Mean weight, in pounds.		Height, in inches.	Mean weight, in pounds.	
	White soldiers at demobilization, 1866.[a]	White and colored at demobilization, 1919.[b]		White soldiers at demobilization, 1866.[a]	White and colored at demobilization, 1919.[b]
60	111.79	123.00	68	144.93	145.52
61	117.59	125.66	69	149.04	149.39
62	120.77	127.10	70	153.19	153.30
63	122.95	129.78	71	158.21	156.91
64	128.43	131.84	72	162.47	159.84
65	132.12	135.20	73	166.40	164.03
66	136.06	139.26	74	168.98	168.54
67	140.77	142.71	75	170.39	168.00

[a] Calculated from Gould,[2] p. 408.

[b] Calculated from Table I.

Comparing the two series, with due allowance for the latter including about 6 per cent negro troops, it appears that, on the average, men of 70 inches and under in stature are heavier among the demobilized soldiers of 1919, but men over 70 inches are lighter than they were in 1866. This indicates that there has been a change in our population through the addition of short stout men and tall lank men. There has indeed clearly been an addition to our population of short thick-set persons from southeastern Europe and from French Canada, and our tall population (including the mountain whites and many of the tall men of the Southern States) has become lanker, through the inclusion of a larger percentage of this lank type in the 1917 data than in the 1866 data.

We may seek a check on this conclusion by comparing our measurements of the draft boards on recruits of 1917–1918 with figures for 6,359 American-born white drafted men accepted for military service by recruiting officers during the draft period of the Civil War, as given in Baxter[1] (Vol. II, pages 300–315). (See Tables 11 and 12, p. 74.)

Table 12, based on Baxter's, indicates that for Civil War drafted recruits, white native Americans, the commonest combination was 120–139 pounds weight and 65–67 inches of stature, and this combination was found in 171 per 1,000 men. Of World War recruits the commonest combination is 120–139 pounds and 67–69 inches stature, and this combination was found in 134 per 1,000 men.

A comparison of Table 12 with Table 11, giving the statistics for the recruits of 1917–1918, all colors and nativities and in the same form as for 6,359 American-born whites, Civil War tables, shows that there was a considerably larger proportion of men 69–73 inches and over in the recruits of 1917–1918. Assuming the basis of selection to have remained the same, then it would appear that there is in the population now a smaller proportion of very short men and a larger proportion of very tall men as compared with 50 years ago. However, the comparability of these tables is very limited, since the one for the Civil War includes only native-born white Americans and the other includes all colors and nativities drafted in 1917–1918. Also the army of the Civil War contained many boys of 18 years or under.

There is shown in the tables a considerable decrease of men of small weight, under 140 pounds, and an increase of men of large weight, over 140 pounds. The tables as they stand indicate an increase of short thick-set men and tall slender men. The former group is doubtless made up largely of recent immigrants from southeastern Europe, who are excluded in the Civil War table. The latter is largely due to the inclusion in our statistics, of the tall lank type from the Southern States who were to a large extent also excluded in the Civil War table. Whether this type is racial or due to other causes does not concern us now. It is largely through the inclusion of these men from the Southern States that there is a larger percentage of high statures among the recruits of 1917–1918 than among those of the Civil War. At least this influence has been added to that of the immigration of Scandinavians. As already stated, the value of this comparison is very limited, since Baxter's figures are for draft recruits, American-born recruits, and those for 1917–1918 are for the mixed population.

It is very difficult to answer the question whether the physique of our young men has changed in the last 50 years. Indeed, the question thus unqualified has little meaning. Had the racial constitution of the population remained constant, that is, had there been no heavy immigration, then the question would have more meaning; but in view of the tremendous immigration, amounting in some years to nearly a million persons, the physical changes of the racial constitution of our stock have been so great as to mask entirely any slight alteration that may have occurred in the physique of the stock of 50 years ago, either through improvement or deterioration of environmental or economic conditions.

TABLE 114.—*Correlation between stature and chest circumference, Civil War recruits (Baxter,[1] Vol. II, p. 166).*

Stature, in inches.	Chest circumference (expiration), in centimeters.						Total.
	Under 29.	29-30.9	31-32.9	33-34.9	35-36.9	37 and over.	
Under 61	1.391	2.257	2.060	1.203	0.443	0.124	7.478
61-62	4.365	12 657	13.739	7.797	2.475	.555	41.588
63-64	6.512	30.083	50.107	38.755	13.425	2.892	141.774
65-66	4.530	32.409	85.775	91.375	40.017	9.506	263.612
67-68	1.852	19.105	77.520	111.183	61.263	17.760	288.683
69-70	.559	7.033	36.219	68.695	47.688	17.012	177.206
71-72	.150	1.599	10.033	23.119	20.562	9.027	64.490
73 and over	.018	.261	1.708	4.834	5.225	3.127	15.173
Total	19.377	105.404	277.161	346.961	191.098	60.003	1,000.004

Total strength, 501,068 drafted men, includes substitutes and late volunteers of all nationalities.

TABLE 115.—*Correlation between stature and chest circumference, recruits, 1917-1918 (per 1,000).*

Stature, in inches.	Chest circumference, in centimeters.					Total.
	29-30	31-32	33-34	35-36	Over 37.	
Under 61	0.990	2.339	2.288	0.971	0.292	6.880
61-62	4.611	10.772	8.016	2.768	.655	26.822
63-64	13.532	36.977	31.306	11.358	3.177	96.350
65-66	23.029	77.475	79.057	32.424	9.329	221.314
67-68	21.203	91.602	113.965	53.286	16.468	296.524
69-70	10.224	57.215	89.970	49.593	16.328	223.330
71-72	2.838	20.099	40.106	26.010	9.591	98.644
73 and over	.515	4.351	11.536	9.612	4.117	30.131
Total	76.942	300.830	376.244	186.022	59.957	999.995

Total strength, 873,159 drafted men of all nationalities.

(c) *Correlation between stature and chest circumference.*—Table II gives the correlation of stature to chest circumference; that is, it shows the absolute number of men who were 59 inches tall and who belonged to each of the respective classes of chest circumference from 29 to 39 inches, and the same for each class of stature from 59 to 79 inches. The ratios per 1,000 for each of the separate statures is given in Table II, and similarly the distribution per 1,000 of each of the separate chest measurements of the different statures is also given in Table II. Table II shows that in 873,159 men measured the commonest combination among drafted men was 68 inches stature and 33 inches chest circumference.

From Table II it appears that there was actually a larger proportion of men that were 59 inches tall who had a chest circumference of 33 inches or over than of men that were 60 inches tall, and correspondingly of the men 60 inches tall there was a larger proportion with a chest circumference 33 inches and over than there was of men 61 and 62 inches tall. The reason for this is that there was a selection for Army purposes of the stoutest men of small stature. The men of short stature who had a chest circumference of only 30 inches were largely eliminated. For men of 62 inches stature and above, the effects of this selection is no longer obvious. Similarly in the case of men over 75 inches tall we find the chest circumference not increasing with the stature. Indeed, the chest circumference in Table II tends slightly to decline in the case of the very tall men. This is apparently due to the selective elimination from military service of the very heavy men among the tall men who were examined. The question arises whether there has been a change in physique of men of military age since the Civil War. Some light is thrown on the subject by a comparison of Table 114 and Table 115. Table 114 gives the per mille distribution of the different combinations of stature and chest circumference classes from 501,068 men of all nationalities, draft recruits for the Civil War, taken from a population already depleted by volunteer enlistments. Table 115 gives similarly the per mille distribution of the combination of stature and chest circumference classes for 873,159 recruits for the World War. Assuming that no men under 29 inches chest circumference were accepted for the World War, we may compare the remaining classes of chest circumference with each stature class in the two tables. The most frequent combination in both the Civil War and the World War is 67–68 inches stature and 33–34 inches chest circumference. This group contains 111 per 1,000 in the Civil War recruits and 114 per 1,000 in the World War recruits. Taking the men with the commonest chest circumference, 33–34 inches, it appears that in the World War there was a larger proportion of the tall statured men of this chest circumference, indicating the larger proportion of slender men. For the 31–32 inches we find similarly a larger proportion of tall slender men. Taking the group 35–36 inches, we find again an excess of the taller men. It is indeed only in the group of short slender men[a] that we find a deficiency in the World War recruits. There were proportionately more of the tall slender men in the World War than in the Civil War. This result accords with what has been found already and doubtless is due to the fact that the draft for the World War covered the Southern States, the home of tall slender men, whereas these were naturally not included in the recruits for the Civil War, Federal Army.

Another matter of importance that comes from a consideration of Table II is the coefficient of correlation. This is found to be 0.2304, about half the correlation that exists between stature and weight. This shows that the relation between stature and weight is twice as close as that between stature and chest circumference. In other words, men of a given stature are less variable in respect to their weight measurements than in respect to their chest circumference.

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[a] The common type of very young men found in the Civil War statistics.

(*d*) *Correlation between weight and chest circumference.*—Table III gives the correlation between weight and chest circumference. The coefficient of correlation is found to be 0.6907, which is a much higher correlation than between stature and weight and stature and chest circumference. This is in accordance with common experience, namely, that chest measurement varies closely with weight in a given stature;—the heavier the man the greater his chest circumference. This table shows that the commonest chest circumference is 33 inches and the commonest weight 135–139 pounds. The most frequent combination of chest circumference and weight is 33 chest and 135–139 weight. This then corresponds to the condition of the typical man of military age. Since the most frequent height is 68 inches, the most frequent combination of these three dimensions found in recruits of military age is the following: Stature, 68 inches; weight, 135–139 pounds; chest, 33 inches. The corresponding average measurements are: Stature, 67.49 inches; chest circumference (expiration), 33.22, and weight 141.54 pounds.

Table III (B) gives the ratio per 1,000 of the different weights to chest measurement, and Table III (C) gives the ratio per 1,000 of the separate chest measurements to each weight class.

(*e*) *Correlation between stature and waist circumference.*—Table LXXV gives the correlation between stature and waist circumference for 103,410 white and colored troops consolidated. The stature groups range from 148 to 205 centimeters, the mode being in the class 170–171 centimeters, a class which contains 12 per cent of all cases. The average stature is 171.99 centimeters, with a standard deviation of 6.68 ± 0.01.

The waist circumference ranges from 50 to 104 centimeters and over, the modal class being 76–77 centimeters, and the mean waist circumference 77.84 centimeters, with a standard deviation of 5.91 ± 0.01. The correlation between stature and waist circumference is 0.1923 ± 0.0019. This is not a high correlation, such as is found, in a symmetrical figure, on the two sides of the sagittal plane. It is well known that persons who are very tall are large in all dimensions; still, there are so many short persons that are stout and so many tall persons that are thin, as measured by the waist circumference, that the first obvious relation is obscured by the second one.

From the table we see that the commonest relation of stature and waist circumference is that of stature of 170–171 centimeters, and a waist circumference of 76–77 centimeters. This condition is found in about 19 per 1,000 of the men measured.

2. CORRELATION BETWEEN MEASUREMENTS FOR WHITE TROOPS (DEMOBILIZATION).

(*a*) *Correlation between chest circumference and transverse diameter of pelvis between cristæ.*—Table LXXIX shows the correlation between chest circumference and transverse diameter of pelvis between cristæ. The table shows that the modal diameter of the pelvis is 29 centimeters, a class that includes about 16 per cent of all. The commonest combination of chest circumference and transverse diameter of the pelvis is: 86–89 centimeters chest circumference and 29 centimeters pelvic diameter, giving a combination found in nearly 6 per cent of recruits. The mean diameter of the pelvis for the white troops is 29.45; the standard deviation of this dimension is 2.90. The correlation is .3073 ± 0.0021.

(*b*) *Correlation between stature and sitting height.*—Table LXXXIII shows the correlation between total stature and sitting height for white troops. As has been pointed out earlier, sitting height is usually about 53 per cent of the total stature. In Table LXXXIII it appears that the commonest sitting height is 90–91 centimeters, while the commonest stature is 170–171 centimeters; the sitting height here also is about 53 per cent of the stature. The average sitting height is 90.39, with a standard deviation of 3.51; the mean stature in this table is 171.99 centimeters, with a standard deviation of 6.66. The range in the relation of sitting height to stature is, however, great, as indicated in the table. Thus there were 4 per 1,000 of the recruits with a stature of 162.5 centimeters, and sitting height of 90.5 centimeters. For these the relative sitting height is 55.6 per cent of the total stature. One per 1,000 of the men had a stature of 184.5 and a sitting height of 90.5; here the relative sitting height is 49.1 per cent of the total stature. Similarly, of men 170.5 centimeters in stature, there were 0.6 per 1,000 who had a sitting height of 80.5; thus their relative sitting height was 47.2 per cent of the stature. Again, 0.5 per 1,000, with a sitting height of 98.5 and a total stature of 170.5, had a relative sitting height of 57.8 per cent of the total stature. The correlation between stature and sitting height is found to be 0.6626 ± 0.0012, a high correlation, as was to be expected, since sitting height is a segment of total stature.

(*c*) *Correlation between stature and height of sternal notch.*—Table LXXXV shows the correlation between stature and height of sternal notch from the floor (in centimeters). The commonest height of the sternal notch is 140–141 centimeters, and the mean height of sternal notch is 141.18; standard deviation, 5.91 centimeters. The table shows for each of the different statures the absolute distribution and the frequency of different heights of sternal notch.

Since the height of the sternal notch is an important element of the total stature, it is to be expected that there is a close relation between the two dimensions. The coefficient of correlation is calculated from Table LXXXV as 0.8567 ± 0.0006, a very high correlation. The ratio of height of sternal notch to total stature is as 141.18 : 171.99, or 82.09, or about five-sixths of the total stature.

(*d*) *Correlation between stature and height of pubic arch.*—Table LXXXVI gives the correlation between stature and height of pubic arch for white troops. The modal height of pubic arch is 86–87 centimeters, a group which contains about 15 per cent of all. The average height of pubic arch is 86.82 centimeters; standard deviation, 5.05 centimeters. It will be observed from this table that the relation of mean pubic height to mean stature is as 86.82 : 172.02, or 50.47 per cent. Thus we see that in this series height of pubic arch is almost precisely one-half total stature.

Since height of pubic arch constitutes about one-half of the total stature, it is to be expected that the correlation between the two would be fairly high. It proves to be 0.6960, or over two-thirds, naturally less than the correlation between sternal height and stature, because sternal height is a larger component of total stature.

(*e*) *Correlation between stature and span.*—Table LXXXIV gives the correlation between stature and span for white troops. The modal span is seen to fall in the class 174–175 centimeters, which contains about 10 per cent of all men measured. The ratio of mean span to mean stature is as 175.58 : 171.99, or 102.09 per cent. Thus mean span is seen to be slightly greater than mean stature. There is, however, a good deal of variation in this respect. Thus in the case of men with a span of 168.5 centimeters the most frequent stature is 166.5 centimeters, giving 101.2 per cent. However, there is at one extreme a number of men of this same span who have a height of only 154.5, giving a ratio of 109.06. In this group the span is 9 per cent greater than stature. On the other hand, in six cases the stature of men with a span of 168.5 was 186.5, giving a ratio of 90.35 per cent. In this case the span is about 10 per cent less than the stature.

The correlation between stature and span is 0.7944, a high correlation, as a glance at the correlation surface shows must be the case. For English fathers the correlation between these two dimensions was found by Pearson (1903) to be 0.783; for the sons of such fathers, 0.802. Our result is almost intermediate between Pearson's two figures.

(*f*) *Correlation between chest circumference and weight.*—Table LXXVII gives the correlation between chest circumference in centimeters and weight in pounds for white troops. The commonest combination is seen to be a chest circumference of 86–89 centimeters, and a weight of 140–149 pounds. This class contains about 10 per cent of all men measured. As chest circumference and weight are more or less independent measures, it is not to be expected that the correlation between them will be very high, but it proves to be 0.6598 ± 0.0013. This is a fairly high correlation and indicates that the development of muscles and the deposition of fat upon the chest go hand in hand with increasing weight, so that the two are closely interdependent. It will be noted that this correlation is distinctly less than that found (p. 426) in the case of recruits

(*g*) *Correlation between chest circumference and neck circumference.*—Table LXXVIII gives the correlation between chest circumference and neck circumference in white troops. The modal class for neck circumference is seen to be 36 centimeters, for chest circumference 86–89 centimeters. The mean neck circumference is 35.98; standard deviation 1.80 centimeters. The mean chest circumference is 88.79; standard deviation 5.18. Thus, in this group the neck circumference is to chest circumference as 35.98:88.79, or 40.52 per cent. That is, the neck circumference is about 40 per cent or two-fifths of the chest circumference. The correlation between these two dimensions is 0.5061 ± 0.0016. This fairly high correlation indicates that the same developmental factors that determine a robust trunk also determine to a considerable extent a large neck. Since chest circumference is so closely correlated with weight, it is probable that the neck circumference is also somewhat correlated with weight, though the actual correlation was not calculated.

(*h*) *Correlation between transverse and antero-posterior diameters of the chest.*—Table LXXX gives the correlation between transverse and antero-posterior chest diameters in white troops. The modal class for transverse chest diameter is 28–29 centimeters, and for antero-posterior 20–21 centimeters. The average transverse diameter of the chest is 29.02; standard deviation 2.40. The mean antero-posterior chest diameter is 21.58; standard deviation 1.87. Thus, the antero-posterior diameter is to the transverse diameter as 21.58:29.02, or 74.36 per cent. In other words, the antero-posterior diameter is, on the average, about three-fourths the transverse diameter of the chest. There is, however, a good deal of variation in this regard. Thus the transverse diameter of the chest is seen to range from 18 to 49 centimeters, the larger diameter being 2.5 times the smaller diameter. Since the larger chest circumference is more than twice the smaller chest circumference, this great variation in transverse chest diameter indicates that the length of the axes of the chest is very much more variable than the total circumference. The capacity of the chest is much more constant than its form.

The table gives the range of antero-posterior diameter as extending from 14 to about 40 centimeters. Here we see that the largest class of antero-posterior diameter is 2.7 times the smaller antero-posterior diameter. Thus the range is somewhat greater in per cent than the variability in the transverse chest diameter. The variability of the transverse diameter is, however, seen to be somewhat greater than that of the antero-posterior diameter, as 2.40: 1.87. This is, however, largely because the transverse diameter is a greater dimension than the antero-posterior diameter. The coefficient of variation, which is obtained by dividing the standard deviation by the mean, is for the transverse diameter of the chest 8.27 per cent and for the antero-posterior diameter 8.67 per cent. Thus taking into account the differences in mean dimension, the antero-posterior diameter is more variable than the transverse. This will be easily understood by those who have measured a large number of men. Even among those accepted, there are many cases of chicken-breasted individuals with prominent sternum, greatly increasing the antero-posterior diameter. The correlation between the two diameters is relatively small, 0.2714. This small correlation is no doubt the resultant of two factors, one which tends to keep the shape of the thorax constant and the other which tends to preserve a fairly constant volume, at least for men of a given size. The correlation of the first set of factors is positive, of the latter negative; that is to say, a long transverse diameter would be correlated with a relatively shorter antero-posterior diameter.

(*i*) *Correlation between chest circumference and transverse pelvic diameter.*—Table LXXIX shows the correlation between chest circumference and breadth of the pelvis (between cristæ) for white troops. Of chest circumference, the modal class is seen to be 86–89 centimeters, the mean 88.78, and standard deviation 5.17. Of pelvic diameter the modal class is 29 centimeters, and the mean 29.45, and standard deviation 2.90. The relation of mean chest circumference to mean pelvic diameter is thus 88.79:29.43, or 33.14 per cent. Thus for white troops the pelvic diameter is almost exactly one-third of the chest girth, while it is 38 per cent of waist girth, indicating again the fact that chest girth exceeds waist girth in these veterans. The correlation between these dimensions is 0.3073 ± 0.0021 as compared with 0.3510 ± 0.0019 for waist and pelvis. This suggests that pelvic diameter has a slightly closer relation with waist girth on the one hand than with chest girth on the other; doubtless due to the closer proximity of the two dimensions.

(*j*) *Correlation between waist circumference and transverse pelvic diameter.*—Table LXXXI shows the correlation between waist circumference and transverse diameter of the pelvis (between cristæ) for white troops. The modal class of waist circumference is seen to be 76–79 centimeters; the mean is 77.87; standard deviation 6.08. The modal class for transverse pelvic diameter is 29 centimeters, mean transverse pelvic diameter 29.43; standard deviation 2.85. The relation of mean pelvic diameter to mean waist circumference is thus seen to be 37.8 per cent. This relation, however, is less significant than the relation between the transverse pelvic diameter and the transverse diameter of the chest. This is as 29.43: 29.02, or 101.41. That is to say, on the average, the transverse pelvic diameter is about 1.4 per cent greater than the transverse chest diameter. The correlation between the above two dimensions is 0.3510 ± 0.0019. This correlation is to be expected, since both dimensions depend upon the form of the trunk which constitutes roughly a cylinder of which the diameter as well as the length varies. However, the fact that the coefficient of correlation deviates so far from unity proves that the capacity of the chest and the transverse diameter of the pelvis are to a considerable extent independently variable, and this is understandable in view of the comparative rigidity of the pelvis and the great elasticity of the chest. For the chest is capable of very great extension and development in such training as was given to military men.

(*k*) *Correlation between arm length and forearm.*—Table LXXXII gives the correlation between total arm length (a measurement which extends from the spines of the vertebral column along the outside of the flexed arm to the styloid process at the wrist) and the forearm (or the distance from the olecranon process at the elbow to the styloid process). Thus the forearm is a part of the total "arm length" measurement.

The modal class of arm length is 78–79 centimeters; the average arm length is 78.42; standard deviation 4.69 centimeters. The modal class of forearm length is 27 centimeters; the mean forearm is 26.91; standard deviation 1.73. Thus the forearm measurement constitutes 34.32 per cent of the total "arm length," or slightly more than one-third. Of the total arm length measurement, then, about two-thirds is the distance from the elbow to the vertebral column. The average transverse diameter of the chest is 29.02, half the chest diameter is 14.51. Substracting the sum of half the mean transverse chest diameter and mean length of the forearm $(14.51 + 26.91 = 41.42)$ from the total arm length, we get 37.16 centimeters as the length of the upper arm. This makes the relation of the length of the forearm to the length of the upper arm as 26.91: 37.16, or 72.42 per cent. Calling the total " arm length " 100, then the relative length of the segments to be assigned to the half chest diameter, upper arm and forearm as far as the styloid process, are 18.46, 47.29, and 34.25, or very roughly 1, 3, and 2, respectively.

Since the forearm is part of the measurement of arm length, a high correlation between the two parts is to be expected. This is found to be 0.5837, which is a fairly high correlation. That it is not higher is no doubt due to the fact that it is the resultant of two independently working factors, one which influences the arm as a whole and all its parts and tends to create a positive correlation, and the other which, with constant arm length, tends to alter the relative position at which the division between fore and upper arm shall occur. This tends toward a negative correlation.

(*l*) *Correlation between leg length and knee height.*—Table LXXVI gives the correlation between the length of the leg and the height of the knee for white troops. As indicated elsewhere, the length of the leg is measured from the gluteal fold (which is the posterior continuation of the perineum and marks approximately the lower end of the sitting height dimension) to the apex of the internal malleolus. The knee height, on the contrary, is measured from the floor to the top of the patella. Thus the knee height is included in part in the leg length, but is not completely included in it.

The modal class of leg length is 70–71 centimeters, the mean leg length is 71.69; standard deviation 4.71. The modal class of knee height is 46–47 centimeters. The mean knee height is 47.08; standard deviation 3.62 centimeters. The mean leg length is 71.69 centimeters; standard deviation, 4.71 centimeters. Thus the leg length is seen to be more variable than the knee height, which, however, is to be expected, owing to its greater length. If we divide the two standard deviations by the mean length of the corresponding parts, we get a coefficient of variation for leg length of 6.57 per cent and a coefficient of variation for knee height of 7.69. That is to say, knee height is a relatively more variable dimension than the leg length. This suggests that in addition to the variation in the knee height, correlated with variations in the leg length and the size of the body as a whole, there is also a variation in the knee height (assuming the leg length constant) due to the fact of variation in the relative position of the knee, which is sometimes at a relatively higher sometimes at a relatively lower point on the leg.

The correlation between knee height and leg length is 0.4178, a fairly high correlation, because the knee height is a part of leg length. That it is not larger is due to the fact, as pointed out above, that the knee height is not entirely included in the leg length. Variation in the relation of knee height to leg length is considerable. Thus with a constant leg length of 70.5 centimeters, we have on the one hand a knee height of 38.5 centimeters, and on the other of 58.5 centimeters. In the first case the ratio of knee height to leg length is 54.61 per cent, in the second 82.98 per cent. Adding 8.5 centimeters to the mean leg length to give the height of the internal malleolus from the floor, we have a mean leg length of 80.19. Using this as a divisor, we have a ratio for the short knee height of 48.01 per cent and for the longer height of 72.95 per cent. That is, in the shorter knee height the lower leg is less than half of the total leg length; in the greater knee height it approaches three-fourths of the total leg length. In such cases, then, the thigh would constitute only about one-fourth of the total leg length.

If one subtracts from the average knee height 8.5 centimeters, being the average distance from the internal malleolus to the sole of the foot, then the average height of the lower part, of the leg is 38.6 centimeters, which, divided by the leg length (71.69), gives 53.84 per cent as the average relation of the lower leg to total leg length. This is a relatively high proportion as compared with the dimensions given in Martin [5] (pp. 314–315), where at the age of 13 years in the male the "Unterschenkel" is about 42 per cent; in the case of adult Chinese 42.7 per cent. The high per cent of leg length found in our table is no doubt partly due to the circumstance that the measurement was made to the top of the patella, whereas in Martin's measurement, it was made only to the head of the tibia, which is located about 5 centimeters below the top of the patella. Subtracting these 5 centimeters + 8.5 (the height of the internal malleolus), or 13.5 altogether, from the mean knee height, we have 33.6 remaining, which, divided by 71.69, gives 46.87 per cent. Even this gives a relatively long lower leg, due, again, to the fact that our divisor "leg length and foot" is still too short, being height of gluteal fold instead of height of trochanter or iliospinale. For trochanter leg length about 5 centimeters has to be added to our "leg length and foot," which gives a relative knee height of 43.8 per cent.

(*m*) *Correlation between leg length and waist circumference.*—Table CXV shows the correlation between waist circumference and leg length for white troops. This is the basal table used in forming the breeches groups for uniforms. The modal class of waist circumference is 76–79 centimeters. The mean is 77.87; standard deviation 6.08 centimeters. The modal class of leg length is 70–71 centimeters; mean leg length 71.44 centimeters. This mean leg length is clearly to be preferred to that obtained from Table LXXVI, which is based on 20,000 fewer measurements. The coefficient of correlation between waist circumference and leg length is 0.1591 ± 0.0021, a low correlation but positive, indicating that, through the operation of factors that influence the size of the body as a whole, on the average, men with larger waist circumference have longer legs. That the correlation is so low is due in large part to the fact that shorter men are, on the average, more robust (have relatively larger waist and chests) than taller (longer-legged) men.

3. CORRELATION BETWEEN MEASUREMENTS.—NEGRO TROOPS.

In the following paragraphs the correlations are given between various pairs of dimensions for Negro troops. The numbers are unfortunately small, under 6,500, but the means and correlations obtained from them are doubtless significant for comparison with white troops.

(*a*) *Correlation between stature and sitting height.*—Table LXXXVII gives the correlation between stature and sitting height for 6,433 colored troops. The modal class of sitting height is 86–87 centimeters, the mean sitting height is 87.35; standard deviation 3.48. The mean stature is 171.99; standard deviation 6.90 centimeters. The relation of mean sitting height to stature is 50.79 per cent. Considering only the classes which contain more than 10 individuals, the range of relative sitting height for men of stature 170–173 is from 46.7

per cent to 53.6 per cent. The coefficient of correlation between stature and sitting height is 0.6088.

(*b*) *Correlation between stature and height of sternal notch.*—Table LXXXIX gives the correlation between stature and height of sternal notch in 6,454 colored troops. The modal class for sternal notch is 142–143 centimeters; the average is 142.39; standard deviation 6.05. The relation of height of sternal notch to mean stature is 82.8 per cent. If the standard deviation of the mean stature (in this table, 6.91 centimeters) is somewhat more variable than the height of sternal notch, it may be because of the greater number of units involved in mean stature. Dividing each standard deviation by the mean in order to secure the coefficient of variation, we find that this is for the mean stature 4.25 per cent, and for sternal notch 4.01 per cent. Thus, the height of the sternal notch proves to be also a relatively less variable dimension. The coefficient of correlation between these two dimensions is 0.8582.

(*c*) *Correlation between stature and height of pubic arch.*—Table XC gives the correlation between stature and height of pubic arch in the case of 6,220 colored troops. The modal class of pubic height is 90–91 centimeters, the mean pubic height is 89.42; standard deviation 5.27. The relation of mean height of pubic arch to mean stature is 52.02 per cent. The variability in this respect is considerable. Thus the men with a stature of 172–173 centimeters have a relative pubic height ranging (if we include only the more frequent classes) from 46.67 to 55.94. The coefficient of correlation is 0.6948.

(*d*) *Correlation between stature and knee height.*—Table XCI shows the correlation between stature and knee height for 5,725 colored troops. The modal class of knee height is 46–47 centimeters. The average is 47.26; standard deviation 3.64. Mean height is 172.05; standard deviation 6.90. The average knee height constitutes 27.47 per cent. The coefficient of correlation between the two dimensions is 0.4763.

(*e*) *Correlation between stature and span.*—Table LXXXVIII gives the correlation between stature and span in the case of 6,441 colored troops. The modal class of span is 182–183 centimeters; the average span is 180.76; standard deviation 8.59. The relation of span to height is 105.16 per cent. The range in this respect is seen to be considerable. Thus of men with an average stature of 170.5 we have some with a span of 168.5, or 98.83 per cent. At the other extreme we have men with a span of 190.5, or 1.118 times the stature. The coefficient of correlation between the two dimensions is 0.7292; less than in whites.

(*f*) *Correlation between chest circumference and weight.*—Table XCIII gives the correlation between chest circumference and weight for 3,319 colored troops. The number is small because in one of the camps, for a period, the colored men were not weighed. The modal class of weight is 140–149 pounds and modal chest circumference 86–89 centimeters. The mean weight is 149.53; standard deviation 17.53 pounds. The mean chest circumference is 88.14; standard deviation 4.79 centimeters. The range of weight is from 100–200 pounds and over. Of the 3,319 men, 23 weigh 200 pounds or over, or 6.93 per 1,000. The chest circumference ranges from around 70 to over 105 centimeters, the largest number being 50 per cent greater than the smallest. The correlation between chest circumference and weight is 0.6559 ± 0.0067, a high correlation because, as pointed out in another connection, the chest circumference varies directly with weight since extra weight is apt to be laid down on muscles and fatty tissues of the chest. The correlation is the same as in whites.

(*g*) *Correlation between chest circumference and sitting height.*—Table CVII gives the correlation between chest circumference and sitting height in the case of 6,355 colored troops. The modal class for sitting height is 86–87 centimeters. Mean sitting height is 87.35; standard deviation 3.43. The modal class for chest circumference is 86–87 centimeters; mean chest circumference 87.99; standard deviation 4.76. We see here a very close relation between chest circumference and sitting height, the ratio of the one to the other being as 1.007:1. The range in chest circumference, even excluding the extreme classes with fewer than 5, is very great, from 70 centimeters to 105, or an increase of 150 per cent. For men with a sitting height of 86–87 centimeters there is a range of classes containing 10 or more from 76–77 to 98–99 centimeters. In the slenderest group this gives a ratio of chest circumference to sitting height of 88.44 per cent; for the stoutest men the ratio is 113.87 per cent. The correlation between chest circumference and sitting height is 0.3012.

(*h*) *Correlation between chest circumference and neck circumference.*—Table XCIV gives the correlation between chest circumference and neck circumference for 6,280 colored troops. The neck circumference ranges from 29 to 44 centimeters, the modal class being 36 centimeters. The average neck circumference is 36.37; standard deviation 1.72. The mean chest circumference is 87.97; standard deviation 4.84. The relation of neck circumference to chest circumference is obtained by dividing the mean of the former by the mean of the latter, or 41.34 per cent. Taking the class of 83.5 chest circumference, we find the extremes of neck circumference having more than 5 in the class as follows: For the smallest neck circumference, 31 centimeters, or 37.15 per cent of chest circumference; for the largest neck circumference, 40 centimeters, or 47.90 per cent. The correlation between neck circumference and chest circumference is 0.5172 ± 0.0062; practically as in whites.

(*i*) *Correlation between transverse and antero-posterior diameters of the chest.*—Table XCVI gives the correlation between transverse and antero-posterior chest diameters in the case of 6,450 colored men. The antero-posterior diameter ranges from 14 to 35 centimeters, with a modal class at 20–21 centimeters. The mean antero-posterior diameter is 21.21; standard deviation 1.74. The transverse chest diameter ranges from 18 to 45 centimeters, with a modal class at 28–29 centimeters, and an average of 29.05; standard deviation 2.26. The antero-posterior diameter is, therefore, to the transverse as 21.21:29.05, or 73.01 per cent. For men of antero-posterior diameter of 20.5 centimeters, there is a considerable range of transverse diameter from 20.5 to 38.5 centimeters. In the narrowest chest, the relation of antero-posterior to transverse diameter is 100 per cent. In the broadest chest it is 53.25 per cent. The corresponding thoracic indices are 100 and 188.

The standard deviation of transverse diameter is greater than that of the antero-posterior, but this may be due to the greater average size of the transverse dimension. The coefficient of variability of the transverse diameter is 7.78; of antero-posterior diameter it is 8.20. This indicates that the antero-posterior diameter is relatively the more variable. The coefficient of correlation between transverse and antero-posterior chest diameters is 0.2267.

(*j*) *Correlation between chest circumference and transverse diameter of pelvis.*—Table XCV gives the correlation between chest circumference and transverse diameter of pelvis in the 6,345 colored troops. The range of diameters of pelvis, including classes containing more than 10, is from 21 to 39 centimeters. The modal class is 28 centimeters, and the average diameter is 28.54; standard deviation 2.64. Taking the class of men averaging 87.5 centimeters chest circumference, including only the groups containing 10 or more, we find a range from 23 to 34 centimeters. The relation of mean transverse diameter of pelvis to mean chest circumference is 32.44 per cent. For the men of smallest pelvic diameter referred to above (23 centimeters) it is 26.29 per cent; for the men with greatest pelvic diameter (34 centimeters) it is 38.86 per cent.

More significant, perhaps, is the ratio of transverse diameter of pelvis to transverse chest diameter, 98.24 per cent. Thus the transverse diameter of the pelvis is slightly less than the transverse diameter of the chest. The correlation between chest circumference and transverse diameter of pelvis is 0.3297 ± 0.0075.

(*k*) *Correlation between waist circumference and transverse diameter of pelvis.*—Table XCVII gives the correlation between waist circumference and transverse diameter of pelvis in 6,354 colored troops. The most frequent combination of measures is 76–79 waist circumference with 28 centimeters diameter of pelvis. The mean diameter of pelvis is for this group 28.42; standard deviation 2.35. The mean waist circumference is 77.82; standard deviation 5.71. The ratio of diameter of pelvis to waist circumference is thus 36.52 per cent—that is, the waist is relatively smaller with relation to the hips than the chest is. The standard deviation of the waist circumference is greater than that of the transverse diameter of the pelvis as 5.71:2.35. The coefficient of variation, however, is in the one dimension 7.40 per cent and the other 8.27 per cent. Thus, rather remarkably, the diameter of the pelvis seems to show a relatively greater variability than the circumference of the waist. (Note the greater variability of pelvic diameter and waist circumference in whites than in colored). The correlation between waist circumference and transverse diameter of pelvis is 0.4456 ± 0.0068.

(*l*) *Correlation between arm length and forearm.*—Table XCVIII gives the correlation between arm length and forearm for 5,514 colored troops. The arm length, as will be remembered, is defined as the distance from the spines of the vertebral column to the styloid process. The forearm is from the elbow to the same process. The modal class for arm length is 80–81 centimeters; for forearm 28 centimeters. The average arm length is 80.79; standard deviation 4.76. The average length of the forearm is 28.20; standard deviation 2.03. The mean forearm is to the mean arm length as 28.20:80.79, or 34.91 per cent. Taking arm-length class 78.5, and considering only those classes which contain 5 or more individuals, the relatively shortest forearm is 24 centimeters, or 30.57 per cent; the longest forearm is 31 centimeters, or 39.48 per cent of "arm length."

The total arm length may be divided into three sections, including half the transverse diameter of the chest, upper arm and forearm. The average half transverse diameter of chest is 14.53. If we add to this the mean forearm 28.20, there remains 38.06 for the approximate length of the upper arm. In relation to the total mean arm length of 80.79, these dimensions are, respectively, 17.98, 47.11, and 34.91 per cent. The correlation between arm length and forearm is 0.5782, a relatively high correlation, because one measurement is included in the other.

(*m*) *Correlation of leg length and knee height.*—Table XCII gives the correlation of leg length and knee height for 5,595 colored troops. Leg length has been defined as the distance from the gluteal fold to the internal malleolus, and knee height as the distance from the sole of the foot to the top of the patella. The two measurements therefore overlap and one is not wholly included in the other. The modal class of leg length is 74–75 centimeters, and that of knee height is 46–47. The average leg length is 74.38; standard deviation 4.59. The average mean knee height is 47.32; standard deviation 3.37. It is probable from the table that there are some adult males who have a smaller knee height than 38 centimeters and a greater knee height than 57 centimeters.

To compare the leg length and knee height, we may subtract from the knee height 8 centimeters, in order to get the length of the lower leg from the top of the patella down. As thus defined, the knee height from the top of the patella to the malleolus is 39.3. If we subtract further 6 centimeters for the distance from the top of the patella to the head of the tibia, we get 33.3 centimeters as the length of the lower part of the leg. This distance divided by the leg length gives the proportion of the lower leg to total length of leg as 44.77 per cent. The knee height as measured constitutes 63.62 per cent of the total leg length. The correlation between knee height and leg length is 0.4305.

4. COMPARISON OF CORRELATION BETWEEN WHITES AND NEGROES.

Tables 103, 104, and 116 give the comparative measurements and correlation of parts in the white and Negro troops. These tables show at a glance the means of the various dimensions, their standard deviations, and the correlation of certain pairs. We see, for example, that the stature of the Negro troops is more variable than of the white troops, but that the sitting height is 1 per cent less variable in the Negro than in the white. Similarly, the span is more variable in the Negro than in white troops, but the correlation between stature and span is less. This relation between size of standard deviation and correlation is to be expected, since the smaller the variability of each of two dimensions the greater the correlation is apt to be between them. Table 116 shows that the correlation between stature and height of sternal notch is about the same in the two races, slightly greater in the Negro than in the white. Between stature and height of pubic arch it is about the same in the two races. Between leg length and knee height the correlation is much greater in the Negro than in the white; between chest circumference and sitting height the correlation is markedly greater in Negro than in white troops; between transverse and antero-posterior chest diameters the correlation is much greater in the white than in the Negro. This is perhaps associated with the greater similarity in white troops than in Negro troops of the axes of the ellipse made by the cross section of the chest. The correlation between pelvic diameter and waist girth is greater in Negro than in white troops, perhaps associated with the smaller pelvic diameter. The correlation between chest circumference and pelvic diameter is also greater in the Negro than in the white troops, perhaps associated with the smaller size of the latter dimensions in the Negro race. (See Plate XXIX, page 253.)

TABLE 116.—*Correlations, summary of white and colored troops, demobilization, 1919.*

Dimension.	Demobilization.			Mobilization, white and colored.	Taken from tables—		
	White.	Colored.	White and colored.		White.	Colored.	White and colored.
Stature and waist	....	....	0.1923±0.0019	....	....	....	LXXV
Stature and weight	....	....	.5198± .0017	0.4810±0.0006	....	....	LXXIV, I
Stature and chest	....	....	....	.2304± .0007	....	....	II
Weight and chest	....	....	....	.6907± .001	....	....	III
Stature and sitting height	0.6626±0.0012	0.6088±0.0053	....	....	LXXXIII	LXXXVII	....
Stature and sternal notch	.8567± .0006	.8582± .0022	....	....	LXXXV	LXXXIX	....
Stature and pubic arch	.6960± .0012	.6948± .0044	....	....	LXXXVI	XC	....
Stature and knee height	....	.4763± .0069	....	....	....	XCI	....
Stature and span	.7944± .0008	.7292± .0034	....	....	LXXXIV	LXXXVIII	....
Chest circumference and weight	.6598± .0013	.6559± .0067	....	....	LXXVII	XCIII	....
Chest circumference and sitting height	.2415± .0021	.3012± .0077	....	....	XCIX	CVII	....
Chest circumference and neck circumference	.5061± .0016	.5172± .0062	....	....	LXXVIII	XCIV	....
Chest transverse and antero-posterior	.2714± .0020	.2267± .0080	....	....	LXXX	XCVI	....
Chest circumference and pelvis, transverse	.3073± .0021	.3297± .0075	....	....	LXXIX	XCV	....
Waist circumference and pelvis, transverse	.3510± .0019	.4456± .0068	....	....	LXXXI	XCVII	....
Arm length and forearm	.5837± .0015	.5782± .0060	....	....	LXXXII	XCVIII	....
Leg length and knee height	.4178± .0020	.4305± .0073	....	....	LXXVI	XCII	....
Leg length and waist circumference	.1591± .0021	....	....	....	CXV	....	....

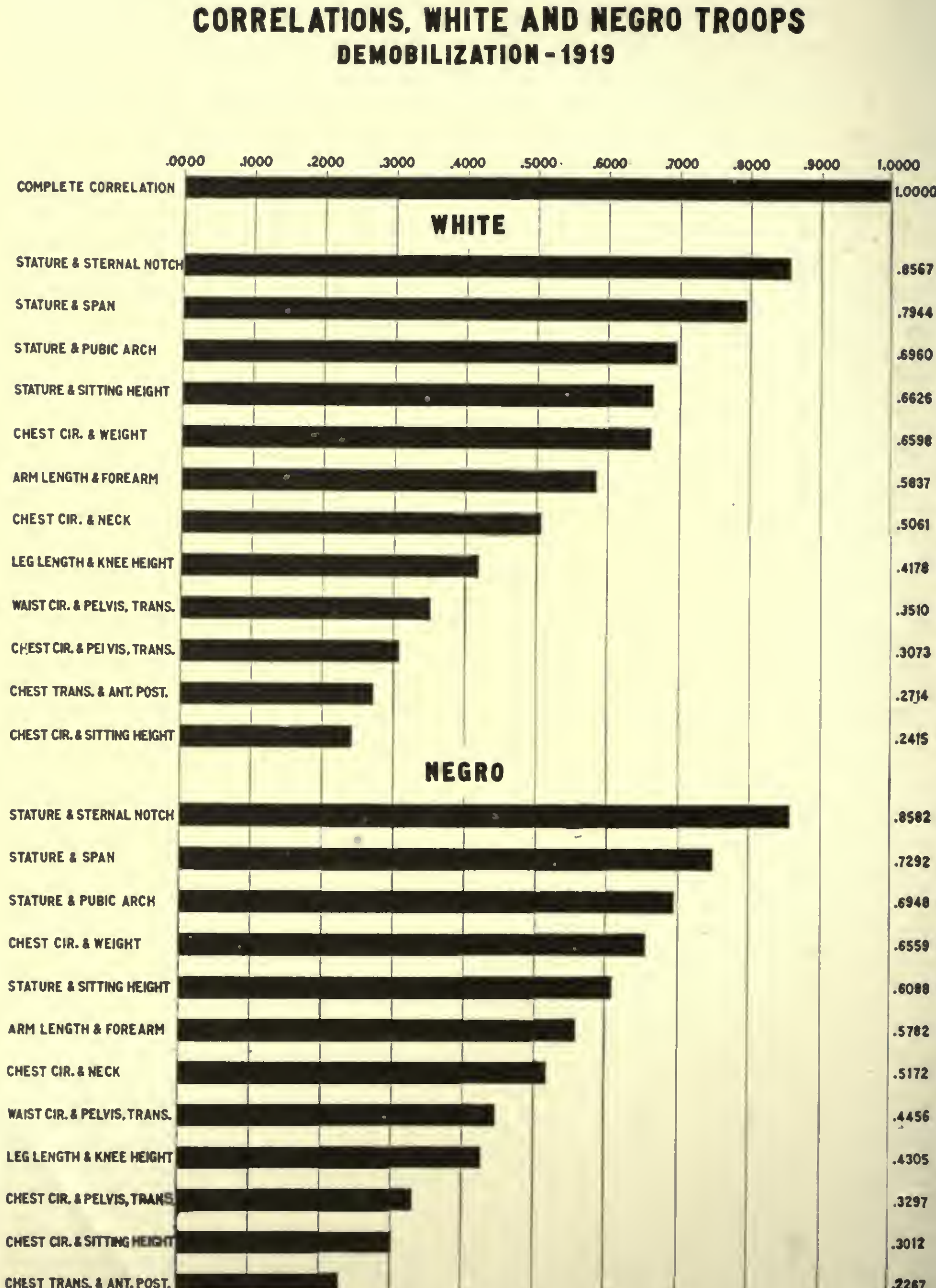

CORRELATIONS, WHITE AND NEGRO TROOPS
DEMOBILIZATION - 1919
.0000
.1000
.2000
.3000
.4000
.5000
.6000
.7000
.8000
.9000
1.0000
COMPLETE CORRELATION
1.0000
WHITE
STATURE & STERNAL NOTCH
.8567
STATURE & SPAN
.7944
STATURE & PUBIC ARCH
.6960
STATURE & SITTING HEIGHT
.6626
CHEST CIR. & WEIGHT
.6598
ARM LENGTH & FOREARM
.5837
CHEST CIR. & NECK
.5061
LEG LENGTH & KNEE HEIGHT
.4178
WAIST CIR. & PELVIS, TRANS.
.3510
CHEST CIR. & PELVIS, TRANS.
.3073
CHEST TRANS. & ANT. POST.
.2714
CHEST CIR. & SITTING HEIGHT
.2415
NEGRO
STATURE & STERNAL NOTCH
.8582
STATURE & SPAN
.7292
STATURE & PUBIC ARCH
.6948
CHEST CIR. & WEIGHT
.6559
STATURE & SITTING HEIGHT
.6088
ARM LENGTH & FOREARM
.5782
CHEST CIR. & NECK
.5172
WAIST CIR. & PELVIS, TRANS.
.4456
LEG LENGTH & KNEE HEIGHT
.4305
CHEST CIR. & PELVIS, TRANS.
.3297
CHEST CIR. & SITTING HEIGHT
.3012
CHEST TRANS. & ANT. POST.
.2267

PLATE XXIX.

F. PATTERNS FOR UNIFORMS.

The measurements ordered by the War Department were for the purpose of securing patterns for uniforms. This purpose guided the set of measurements taken and has influenced the statistical treatment of the data secured. It is believed, however, that this fact will not diminish their importance for general anthropological purposes.

The uniform of the soldier consists of two more or less independent pieces, the blouse for the upper part of the body and the breeches for the lower part. The problem, therefore, is different from that of fitting a single suit—like a union suit—to the soldier, and the matter of precise length of trunk is of relatively less importance in uniforms than it would be for single-piece suits.

1. MEASUREMENTS FOR BLOUSES.

(*a*) *General discussion.*—Our first purpose, then, was to secure measurements which would serve first for making patterns for the blouse and secondly for making patterns for breeches. One limitation was prescribed by the office of the quartermaster, namely, that uniforms would not be made for any group which contained fewer than 5 per 1,000 men. Consequently, it became necessary to combine, for the purpose of this study, many of the smaller classes to fit the needs of the series. The construction of the blouse groups is shown in Tables XCIX and CVII, which give the correlation between chest circumference and sitting height. These two measures were taken as of primary importance in considering the blouse. The chest circumference is the primary basis of classification, and the length of the trunk, as measured by sitting height, is of secondary importance.

The correlation Tables XCIX and CVII were divided, as indicated in the tables, into 22 groups. The first included all chest circumferences under 78 centimeters. The last three groups included all chest circumferences of 102–105, 106–109, and 110–117, respectively. The last two groups, indeed, do not contain the prescribed 5 per 1,000. The division was made rather to meet anthropological interests. All of the other chest circumference groups were classes with a range of 4 centimeters. These groups are 78–81, 82–85, 86–89, 90–93, 94–97, 98–101. The division of each of these chest circumference classes was made so as to provide approximately 20 per cent in each of the extreme groups and 60 per cent in each of the median groups. The group with the shortest sitting height was designated by the initial "S," for short; that with median sitting height by "M," for median; and that with longest sitting height by "L," for long. The 22 groups thus constructed were called blouse groups, and their association with other dimensions was determined.

(*b*) *Chest circumference.*—Table XCIX gives for white troops approximately the frequency per 1,000 men of each of the different chest circumferences for each sitting height. Thus of men of the sitting height of 86–87 centimeters there were 2 with a chest circumference of 68–69 centimeters; there were 5 with chest circumference 70–71; 21 with chest circumference 72–73 centimeters; and 34 with chest circumference 74–75 centimeters, etc. The modal chest circumference for men of this sitting height was 76–77 centimeters. Taking the distribution as a whole, we find that the commonest sitting height is 90–91 centimeters, the commonest chest circumference is 88–89 centimeters, and the commonest combination is that of 88–89 chest circumference and 90–91 sitting height. This group includes about 3.33 per cent of the individuals of the table. The central blouse group is that with chest circumference 86–89 centimeters and sitting height of 88–93 centimeters, and includes about 200 per 1,000, or 20 per cent. Since Table XCIX gives absolute numbers for 95,867 persons, the numbers have to be increased about 4.3 per cent to give exact ratios per 100,000.

(*c*) *Weight.*—Table C gives the association between the different blouse groups and the weight of the individual for white troops. Thus for 79,706 of such troops the total distribution is shown in the second column from the left of the table. The next column gives the findings for blouse group 1 with chest circumference of 68–77 centimeters, inclusive. The remaining columns give the absolute frequencies of the different weight classes for each blouse group; also the mean weight of men for each blouse group.

As the table shows, there are naturally more light-weight men associated with the small-size blouses and an excess of heavy-weight men associated with the large-size blouses.

Table 117 (p. 273) gives the average measurements of white men belonging to each of the 22 blouse groups. It is upon this table that the table of dimensions of manikins (Table 122, p. 276) is, in part, made up.

TABLE 117.—*Dimensions associated with the "blouse" groups, white troops, demobilization.*

[From Tables XCIX–CVI.]

Blouse group designation.	Average chest circumference.	Average sitting height.	Average stature.	Average sternal notch.	Average length of head and neck.	Average trunk height.	Average arm length.	Average neck circumference.	Average shoulder width.	Average chest transverse diameter	Average chest antero-posterior diameter.	Average diameter pelvis (transverse diameter).	Average weight.	Rate per 1,000 of each group.
	Cm.	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Lbs.*	
1.......	75.0	88.8	169.5	139.3	30.2	58.6	76.8	34.4	39.6	27.0	20.0	28.1	129	8.8
2 s.....	80.0	83.6	163.7	134.6	29.1	54.5	74.2	34.2	39.2	26.8	19.9	27.4	120	7.9
2 m....	80.0	88.6	169.2	139.0	30.2	58.4	76.1	34.5	39.7	27.1	20.1	27.9	126	34.9
2 l.....	80.0	93.5	176.4	144.5	31.9	61.6	78.1	34.8	40.6	27.6	20.5	28.7	135	10.4
3 s.....	83.6	83.6	163.7	134.6	29.1	54.5	74.9	34.9	40.0	27.5	20.5	27.9	125	21.7
3 m....	83.7	88.8	169.5	139.3	30.2	58.6	76.7	35.0	40.5	27.8	20.7	28.4	132	125.3
3 l.....	83.8	93.7	176.7	144.8	31.9	61.8	78.7	35.2	41.2	28.2	20.8	29.1	140	50.6
4 s.....	87.5	85.4	165.2	135.8	29.4	56.0	76.2	35.6	41.0	28.5	20.8	28.6	134	62.2
4 m....	87.6	90.5	172.0	141.3	30.7	59.8	78.2	35.7	41.5	28.8	21.3	29.2	141	208.2
4 l.....	87.6	95.4	178.9	146.5	32.4	63.0	80.1	35.9	42.1	29.1	21.5	29.9	150	50.3
5 s.....	91.3	85.4	165.2	135.8	29.4	56.0	77.1	36.3	41.9	29.4	21.9	29.2	142	36.6
5 m....	91.4	90.6	172.1	141.4	30.7	59.9	79.0	36.4	42.3	29.5	22.0	29.8	150	162.4
5 l.....	91.4	95.5	179.0	146.6	32.4	63.1	81.1	36.6	42.9	29.8	22.1	30.5	158	54.0
6 s.....	95.2	85.4	165.2	135.8	29.4	56.0	77.9	37.1	42.8	30.0	22.6	30.1	150	12.7
6 m....	95.2	91.5	173.5	142.4	31.1	60.4	76.9	37.2	43.3	30.4	22.7	30.6	160	91.8
6 l.....	95.3	97.3	180.9	148.3	32.6	64.7	82.7	37.4	44.0	30.8	22.9	31.3	170	12.7
7 s.....	99.1	87.3	167.6	137.7	29.9	57.4	78.9	37.8	43.5	30.9	23.5	31.0	162	8.1
7 m....	99.1	92.4	174.8	143.2	31.6	60.8	81.1	37.9	44.1	31.2	23.5	31.5	170	24.3
7 l.....	99.1	97.4	181.1	148.5	32.6	64.8	82.8	38.0	44.5	31.3	23.7	31.7	179	5.4
8.......	103.1	92.4	174.8	143.2	31.6	60.8	81.3	38.8	45.0	32.2	24.5	32.4	181	8.4
9.......	107.2	92.6	175.1	143.4	31.7	60.9	81.6	39.7	45.7	33.2	25.5	33.4	189	2.3
10.....	112.1	92.6	175.1	143.4	31.7	60.9	81.7	40.8	46.2	34.3	26.4	34.7	191	1.0

TABLE 118.—*Dimensions associated with the "blouse" groups, colored troops, demobilization.*

[From Tables CVII–CXIV.]

Blouse group designation.	Average chest circumference.	Average sitting height.	Average stature.	Average sternal notch.	Average length of head and neck.	Average trunk height.	Average arm length.	Average neck circumference.	Average shoulder width.	Average chest transverse diameter	Average chest antero-posterior diameter.	Average diameter pelvis (transverse diameter).	Average weight.	Rate per 1,000 of each group.
	Cm.	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Lbs.*	
1.......	71.4	86.5	170.9	141.7	29.2	57.3	79.0	35.4	41.7	27.7	20.6	27.1	135	3.2
2.......	75.9	84.9	168.6	139.7	28.9	56.0	76.3	34.4	40.4	26.4	19.4	26.7	127	9.0
3 s.....	80.0	81.6	165.1	136.9	28.2	53.4	76.1	34.5	40.4	26.9	19.8	26.8	126	14.3
3 m....	79.9	86.1	170.3	141.1	29.2	56.9	77.9	34.9	41.0	27.3	20.0	27.1	131	41.0
3 l.....	80.1	91.6	177.5	146.7	30.8	60.8	79.2	35.2	41.3	27.5	20.4	28.0	141	7.1
4 s.....	83.7	81.7	165.2	137.0	28.2	53.5	77.5	35.3	41.3	27.8	20.4	27.1	130	42.2
4 m....	83.8	86.4	170.8	141.6	29.2	57.2	79.1	35.5	41.8	28.1	20.4	27.7	136	147.1
4 l.....	83.9	91.6	177.5	146.7	30.8	60.8	80.3	35.7	42.3	28.5	20.7	28.4	146	35.9
5 s.....	87.3	81.6	165.1	136.9	28.2	53.4	78.6	36.1	42.2	28.5	21.0	28.0	140	40.8
5 m....	87.5	87.3	171.9	142.6	29.3	58.0	80.4	36.3	42.7	29.0	21.1	28.4	147	276.6
5 l.....	87.7	93.3	179.3	148.4	30.9	62.4	82.2	36.4	43.3	29.1	21.3	29.2	154	30.5
6 s.....	91.8	83.0	166.4	138.1	28.3	54.7	80.2	36.9	43.5	29.7	21.7	28.7	151	27.5
6 m....	91.3	87.9	172.6	143.2	29.4	58.5	82.0	37.0	43.7	29.6	21.7	29.2	157	172.9
6 l.....	91.4	93.5	179.5	148.6	30.9	62.6	83.4	37.1	44.0	29.9	21.8	29.6	163	32.3
7 s.....	95.6	84.5	168.0	139.2	28.8	55.7	81.8	37.6	44.3	30.4	22.2	29.6	164	17.3
7 m....	95.1	88.9	174.0	144.0	30.0	58.9	83.2	37.9	44.7	30.4	22.4	29.8	168	53.5
7 l.....	95.2	93.6	179.6	148.7	30.9	62.7	84.1	38.0	45.4	30.7	22.6	30.1	176	22.5
8 s.....	99.6	84.7	168.3	139.4	28.9	55.8	81.2	37.8	44.3	31.6	23.3	30.4	165	3.3
8 m....	99.0	89.6	175.0	144.8	30.2	59.4	84.5	38.9	45.7	31.5	23.2	30.8	182	14.8
8 l.....	99.1	95.4	181.6	150.3	31.3	64.1	86.2	38.7	46.3	31.9	23.1	31.1	180	3.5
9.......	104.2	90.4	176.4	145.8	30.6	59.8	83.5	39.4	47.6	32.6	24.9	32.9	193	4.9

2. MEASUREMENTS FOR BREECHES.

The primary classification of breeches is made on the circumference of the waist; the secondary division is length of leg. The method of taking these measurements has been already described (p. 57). In order to determine the number and limits of groups to which the breeches patterns should be cut, Table CXV was drawn up. This gives the different classes of waist circumference from 63 and under to 110 centimeters for white troops. Groups 1 and 2 were not subdivided, on account of small size. Group 9 remained undivided for the same reason, and the following three larger classes of waist circumference, containing few individuals, were grouped into one breeches group. On the other hand, waist circumference 68–71, 72–75, 76–79, 80–83, 84–87, 88–91, were each divided into three groups, short, median, and long, because of the number of men falling into these classes of waist circumference. This makes 22 classes of breeches groups. Table 121, derived from Tables CXV and CXXII, gives the relative frequency per 1,000 of each of the breeches groups for white and colored troops.

Tables 119 and 120 were prepared to give the association between the various breeches groups and dimensions of various parts of the body, for both white and colored troops. It is believed that these should be used in the making of uniforms. The more important anthropometric conclusions have been drawn from them in the earlier part of this book, under the respective parts.

TABLE 119.—*Dimensions (in centimeters) associated with the "breeches" group, white troops, demobilization.*

From Tables CXV–CXXI.]

Breeches group designation.	Average circumference of waist.	Average length of leg.	Average thigh circumference.	Average supra-patella circumference.	Average patella circumference.	Average calf circumference.	Average knee height.	Average transverse pelvic diameter.	Ratio per 1,000 of groups.
1	61	70.9	49.2	36.3	34.9	33.6	46.6	28.6	4.7
2	66	69.3	48.0	34.9	34.2	32.1	45.8	27.2	15.6
3 s	70	63.2	49.5	35.4	34.3	32.5	44.4	27.0	14.5
3 m	70	70.2	49.6	35.7	35.9	32.6	46.1	28.1	73.6
3 l	70	78.1	49.7	35.7	35.4	32.8	48.3	29.4	11.0
4 s	74	63.1	50.9	36.3	34.9	33.0	44.3	27.5	27.9
4 m	74	70.5	51.0	36.4	35.5	33.3	46.4	28.6	179.4
4 l	74	78.2	51.1	36.5	36.0	33.5	48.7	29.8	34.6
5 s	77	65.1	52.4	37.1	35.6	33.8	44.9	28.4	52.6
5 m	77	71.4	52.5	37.3	36.2	34.0	46.9	29.3	183.6
5 l	77	78.3	52.5	37.3	36.6	34.3	49.2	30.5	53.5
6 s	81	65.0	54.2	38.1	36.4	34.6	45.1	29.1	29.5
6 m	81	72.3	54.2	38.2	36.9	34.8	47.4	30.1	143.5
6 l	81	80.4	54.1	38.3	37.4	35.0	50.1	31.1	22.3
7 s	85	65.0	55.6	38.9	36.9	35.2	44.9	29.8	11.9
7 m	85	72.4	55.7	39.0	37.5	35.5	47.7	30.8	67.9
7 l	85	80.3	55.4	38.9	37.7	35.7	50.8	32.1	13.6
8 s	89	64.9	56.9	39.5	37.4	35.6	45.0	30.5	4.9
8 m	89	72.5	57.0	39.6	38.0	36.0	47.8	31.4	27.6
8 l	89	80.4	56.7	39.4	38.1	36.1	50.9	32.4	6.1
9	93	72.3	58.7	40.2	38.3	36.5	47.7	32.1	12.7
10	97	72.3	59.2	40.3	38.3	36.5	47.8	32.4	5.8
11	101	72.5	61.1	40.7	39.1	37.4	48.3	33.4	2.0
12	104	72.0	61.8	41.1	39.7	36.9	47.1	34.1	1.4

TABLE 120.—*Dimensions (in centimeters) associated with the "breeches" group, colored troops, demobilization.*

[From Tables CXXII–CXXVIII.

Breeches group designation.	Average circumference of waist.	Average length of leg.	Average thigh circumference.	Average suprapatella circumference.	Average patella circumference.	Average calf circumference.	Average knee height.	Average transverse pelvic diameter.	Ratio per 1,000 of groups.
1........................	61	74.2	50.6	36.7	36.2	34.2	47.3	28.0	5.28
2........................	66	71.6	48.9	34.8	34.2	32.3	45.7	26.4	11.02
3 s......................	70	65.2	49.9	35.5	34.3	32.5	43.3	25.9	11.48
3 m......................	70	72.4	51.0	35.6	35.0	33.0	45.8	26.9	65.79
3 l......................	70	80.3	51.0	35.8	35.4	33.0	48.4	27.4	13.65
4 s......................	74	66.9	52.5	36.7	35.3	33.5	44.4	27.0	38.95
4 m......................	74	73.5	52.4	36.5	35.7	33.8	46.4	27.5	158.26
4 l......................	74	80.1	52.3	36.4	36.2	33.8	48.7	28.1	38.48
5 s......................	77	66.8	53.9	37.3	35.8	34.3	45.3	27.4	40.96
5 m......................	77	73.7	53.9	37.7	36.5	34.8	47.2	28.3	206.36
5 l......................	77	80.5	53.8	37.5	36.9	34.8	49.7	28.8	76.96
6 s......................	81	67.1	55.4	38.7	36.7	35.4	45.4	28.4	17.84
6 m......................	81	74.6	55.5	38.6	37.3	35.5	47.8	29.3	147.25
6 l......................	81	82.1	55.7	38.5	37.8	35.9	50.5	29.8	32.89
7 s......................	85	67.5	57.1	39.1	37.4	36.2	45.4	29.4	8.07
7 m......................	85	75.0	57.1	39.5	37.8	36.1	47.8	30.0	61.44
7 l......................	85	82.3	57.4	39.5	38.0	36.3	50.6	30.3	13.65
8 s......................	89	64.0	57.7	39.4	37.1	36.1	44.7	29.8	2.48
8 m......................	89	74.5	58.7	40.5	38.7	36.7	47.8	30.4	22.81
8 l......................	89	82.3	59.5	40.2	38.6	37.3	51.2	31.2	7.14
9........................	93	76.6	60.1	40.5	38.6	37.0	48.2	31.2	9.31
10.......................	97	75.0	61.8	40.4	38.5	37.1	48.0	31.2	5.90
11.......................	101	73.6	62.9	41.1	39.4	38.1	47.8	32.7	4.03

TABLE 121.—*"Blouse" and "breeches" groups, white and Negro troops.—Designation of each group, basic measurements adopted, and proportional number of each group of the total number of men measured at demobilization.*

"Blouse" groups. White.[a]

Designation.	Chest circumference (rest).	Sitting height.	Proportional number of total men.
	Cm.	*Cm.*	
1.....	68–77	76–101	8.80
2 s....	78–81	76–85	7.91
2 m..	78–81	86–91	34.86
2 l....	78–81	92–101	10.43
3 s....	82–85	76–85	21.67
3 m..	82–85	86–91	125.34
3 l....	82–85	92–107	50.62
4 s....	86–89	76–87	62.24
4 m..	86–89	88–93	208.24
4 l....	86–89	94–107	50.23
5 s....	90–93	76–87	36.60
5 m..	90–93	88–93	162.42
5 l....	90–93	94–107	53.98
6 s....	94–97	76–87	12.72
6 m..	94–97	88–95	91.81
6 l....	94–97	96–107	12.74
7 s....	98–101	76–89	8.08
7 m..	98–101	90–95	24.33
7 l....	98–101	96–105	5.37
8.....	102–105	76–105	8.40
9.....	106–109	76–101	2.33
10....	110–117	84–101	.86
......	....	....	....
......	....	....	....
	....	....	1,000.00

"Blouse" groups. Colored.[b]

Designation.	Chest circumference (rest).	Sitting height.	Proportional number of total men.
	Cm.	*Cm.*	
1.....	68–73	78–93	3.15
2.....	74–77	80–91	8.97
3 s...	78–81	76–83	14.32
3 m..	78–81	84–89	40.91
3 l....	78–81	90–99	7.08
4 s...	82–85	76–83	42.17
4 m..	82–85	84–89	147.13
4 l....	82–85	90–99	35.88
5 s...	86–89	76–83	40.76
5 m..	86–89	84–91	276.63
5 l....	86–89	92–99	30.53
6 s...	90–93	76–85	27.54
6 m..	90–93	84–91	172.94
6 l....	90–93	92–99	32.26
7 s...	94–97	76–87	17.31
7 m..	94–97	86–91	53.50
7 l....	94–97	92–99	22.50
8 s...	98–101	76–87	3.30
8 m..	98–101	86–93	14.79
8 l....	98–101	94–99	3.46
9.....	102–109	82–97	4.88
......	....	....	....
......	....	....	....
......	....	....	....
......	....	....	1,000.00

"Breeches" groups. White.[c]

Designation.	Waist circumference	Leg length.	Proportional number of total men.
	Cm.	*Cm.*	
1.....	50–63	58–97	4.72
2.....	64–67	50–99	15.60
3 s...	68–71	50–65	14.47
3 m..	68–71	66–75	73.57
3 l....	68–71	76–99	11.00
4 s...	72–75	50–65	27.91
4 m..	72–75	66–75	179.38
4 l....	72–75	76–101	34.56
5 s...	76–79	50–67	52.59
5 m..	76–79	68–75	183.55
5 l....	76–79	76–101	53.48
6 s...	80–83	50–67	29.52
6 m..	80–83	68–77	143.54
6 l....	80–83	78–101	22.26
7 s...	84–87	50–67	11.93
7 m..	84–87	68–77	67.94
7 l....	84–87	78–101	13.59
8 s...	88–91	50–67	4.89
8 m..	88–91	68–77	27.59
8 l....	88–91	78–99	6.05
9.....	92–95	50–99	12.72
10....	96–99	54–95	5.77
11....	100–103	58–89	2.02
12....	104–109	58–89	1.38
......	....	....	1,000.00

"Breeches" groups. Colored.[d]

Designation.	Waist circumference.	Leg length.	Proportional number of total men.
	Cm.	*Cm.*	
1....	[e] 63	60–85	5.28
2....	64–67	54–85	11.02
3 s..	68–71	58–67	11.48
3 m.	68–71	68–77	65.79
3 l...	68–71	78–88	13.65
4 s..	72–75	58–69	38.94
4 m.	72–75	70–77	158.26
4 l...	72–75	78–88	38.48
5 s..	76–79	54–69	40.96
5 m.	76–79	70–77	206.36
5 l...	76–79	78–88	76.96
6 s..	80–83	58–69	17.84
6 m.	80–83	70–79	147.25
6 l...	80–83	80–88	32.89
7 s..	84–87	62–69	8.07
7 m.	84–87	70–79	61.44
7 l...	84–87	80–88	13.65
8 s..	88–91	62–69	2.48
8 m.	88–91	70–79	22.81
8 l...	88–91	80–88	7.14
9....	92–95	68–88	9.31
10...	96–99	64–85	5.90
11...	[f] 100	64–87	4.04
......	....	....	....
......	....	....	1,000.00

[a] Table XCIX. [b] Table CVII. [c] Table CXV. [d] Table CXXII. [e] 63 and under. [f] 100 and over.

3. DIMENSIONS OF MANIKINS.

The original orders authorizing the measurement of 100,000 soldiers provided for the construction of manikins from the measurements. Consequently Tables 117 to 120, inclusive, have been drawn up giving data for making such manikins. Tables 117 and 118 give the measurements for the upper part of the body, required for fitting blouses. Tables 119 and 120 give the measurements for the body, from the waist down, for fitting breeches.

Later it was desired to construct entire human figures, and these could not be obtained by piecing together the half figures of which the dimensions are given in the above tables. To construct these entire manikins a slight proportional adjustment had to be made in the "long" and "short" groups. The results are shown in Table 122, which is that of the dimensions of 21 complete manikins for white troops. Whether Tables 117 and 119 or Table 122 shall be used in the manufacture of uniforms and other clothing depends, curiously enough, on the esthetic choice between having the lower edges of the blouses (in case of men of the same stature but different trunk lengths) reach a common level from the floor or reach a common anatomical level (e. g., the trochanters) on the body. Those who regard the former as desirable will use the table of total manikins; those who prefer the latter will use the two tables for blouse groups and breeches groups, respectively.

TABLE 122.—*Dimensions of the 21 manikins (in centimeters), white troops.*

Manikin No.	Blouse group No.	Stature.	Sitting height.	Sternal notch.	Trunk height.	Arm length.	Neck circumference.	Shoulder width.	Chest circumference.	Chest transverse.	Chest antero-posterior.	Pubic height.	Pelvis transverse.	Waist circumference.	Thigh circumference.	Width at thighs.	Suprapatella.	Patella.	Subpatella.	Calf circumference.	Leg length.	Knee height.
1...	1....	169.5	88.8	139.3	58.6	76.8	34.4	39.6	75.0	27.0	20.0	86.3	28.3	60.6	48.9	31.1	36.1	34.7	31.2	33.4	70.4	46.3
2...	2s...	163.5	83.6	134.6	54.5	74.2	34.2	39.2	80.0	26.8	19.9	82.3	27.4	69.2	50.4	32.0	36.6	35.9	32.3	33.7	72.7	48.0
3...	2m..	169.2	88.6	139.0	58.4	76.1	34.5	39.7	80.0	27.1	20.1	85.2	27.9	66.4	48.3	30.7	35.1	34.4	31.0	32.3	69.8	46.1
4...	2l...	176.4	93.6	144.6	61.6	78.1	34.8	40.6	80.0	27.6	20.5	89.2	28.7	64.7	47.0	29.9	34.2	33.5	30.2	31.5	67.9	44.9
5...	3s...	163.7	83.6	134.6	54.5	74.9	34.9	40.0	83.7	27.5	20.5	82.3	27.5	75.3	53.2	33.9	38.1	36.9	33.2	34.9	67.9	47.7
6...	3m..	169.5	88.8	139.3	58.6	76.7	35.0	40.5	83.7	27.8	20.7	85.5	28.2	70.1	49.6	31.5	35.7	35.9	32.3	32.6	70.3	46.1
7...	3l...	176.7	93.7	144.8	61.8	78.7	35.2	41.2	83.8	28.2	20.8	89.2	29.2	65.7	46.7	29.7	33.5	33.2	30.0	30.8	73.3	45.4
8...	4s...	165.2	85.4	135.8	56.0	76.2	35.6	41.0	87.5	28.5	20.8	83.3	28.0	80.0	55.0	35.0	39.2	37.7	34.1	35.7	68.2	47.9
9...	4m..	172.0	90.5	141.3	59.8	78.2	35.7	41.5	87.6	28.8	21.3	86.8	29.0	74.5	51.4	32.6	36.7	35.7	32.2	33.5	71.0	46.7
10..	4l...	178.9	95.4	146.5	63.0	80.1	35.9	42.1	87.6	29.1	21.5	90.3	29.9	70.0	48.3	30.7	34.5	34.0	30.6	31.7	74.0	46.1
11..	5s...	165.2	85.4	135.8	56.0	77.1	36.3	41.9	91.3	29.4	21.9	83.3	28.8	81.2	55.3	35.1	39.1	37.6	33.9	35.7	68.7	47.4
12..	5m..	172.1	90.6	141.4	59.9	79.0	36.4	42.3	91.4	29.5	22.0	87.0	29.5	77.1	52.5	33.4	37.3	36.2	32.6	34.0	71.5	46.9
13..	5l...	179.0	95.5	146.6	63.1	81.1	36.6	42.9	91.4	29.8	22.1	90.6	30.5	73.2	49.9	31.7	35.4	34.8	31.4	32.6	74.4	46.7
14..	6s...	165.2	85.4	135.8	56.0	77.9	37.1	42.8	95.2	30.0	22.6	83.1	29.6	86.1	57.6	36.7	40.5	38.7	34.9	36.8	69.1	47.9
15..	6m..	173.5	91.5	142.4	60.4	76.9	37.2	43.3	95.2	30.4	22.7	87.7	30.4	81.1	54.3	34.6	38.3	37.0	33.3	34.9	72.4	47.5
16..	6l...	180.9	97.3	148.3	64.7	82.7	37.4	44.0	95.3	30.8	22.9	91.6	31.2	76.1	50.8	32.3	36.9	35.1	31.7	32.9	75.5	47.1
17..	7s...	167.6	87.3	137.7	57.4	78.9	37.8	43.5	99.1	30.9	23.5	84.5	31.0	91.2	59.7	38.0	41.8	39.6	35.6	37.8	69.8	48.2
18..	7m..	174.8	92.4	143.2	60.8	81.1	37.9	44.1	99.1	31.2	23.5	88.4	31.2	85.3	55.9	35.5	39.1	37.6	33.9	35.6	72.7	47.9
19..	7l....	181.1	97.4	148.5	64.8	82.8	38.0	44.5	99.1	31.3	23.7	91.4	31.9	79.8	52.0	33.0	36.5	35.4	31.9	33.5	75.4	47.7
20..	8....	17[illegible].8	92.4	143.2	60.8	81.3	38.8	45.0	103.1	32.2	24.5	88.5	31.4	89.1	57.0	36.3	39.5	38.0	34.2	35.9	72.5	47.8
21..	9-10.	175.1	92.6	143.4	60.9	81.6	40.3	46.0	110.0	33.7	26.0	88.5	33.0	97.6	59.5	37.9	40.5	38.7	34.8	36.9	72.7	48.1

4. SIZES AND PROPORTIONS OF MEN IN THE DISTRIBUTION ZONES, Q. M. C.

One aim of the measurements of the 100,000 men was to secure manikins for the construction of patterns for uniforms. The second aim was to secure the proper distribution of sizes of uniforms to the different areas covered by the distribution zones of the Quartermaster Corps. Certain of these zones are designated largely because of the storage capacity of certain large cities or other special relation to the quartermaster's activities. Such are the cities of Philadelphia (D. Z. 3), Baltimore (D. Z. 4), Jeffersonville (D. Z. 6), and the District of Columbia (D. Z. 15). In addition there are 10 distribution zones covering certain large sections of the country or groups of States. These zones may be defined by their included States as follows:

ZONE 1. Maine. New Hampshire. Vermont. Massachusetts. Rhode Island. ZONE 2. Connecticut. New York. New Jersey. Pennsylvania. ZONE 3. Philadelphia. ZONE 4. Delaware. Maryland. Virginia.	ZONE 5. North Carolina. South Carolina. Georgia. Florida. Alabama. Tennessee. ZONE 7. West Virginia. Kentucky. Ohio. Indiana. Michigan. Wisconsin. Minnesota. Iowa. Illinois, northern half.	ZONE 8. Kansas. Missouri. Oklahoma. Arkansas. Illinois, southern half. ZONE 9. Mississippi. Louisiana. ZONE 10. Texas. ZONE 11. North Dakota. South Dakota. Nebraska. Wyoming. Colorado. Utah.	ZONE 12. New Mexico. Arizona. ZONE 13. Montana. Idaho. Nevada. Washington. Oregon. California. ZONE 15. District of Columbia.

Table CXXXIV shows the distributions of frequencies of different statures for the different distribution zones, for a total of 102,061 men. This table also gives the proportional frequency of the different statures in each zone. Arranging the zones in order of average stature of the men, we have the following: Zone 10 (Texas), 174.23; zone 5 (Southern States from North Carolina to Alabama, including Tennessee), 173.90; zone 13 (Pacific Coast States, Nevada, Idaho, and Montana), 173.51; zone 8 (Missouri, Arkansas, Kansas, and Oklahoma), 173.48; zone 11 (North and South Dakota, Colorado, Wyoming, and Utah), 173.44; zone 9 (Mississippi and Louisiana), 173.33; zone 12 (New Mexico and Arizona), 172.73; zone 7 (Central States, including also West Virginia, Kentucky, Wisconsin, Minnesota, and Iowa), 172.06; zone 4 (Delaware, Maryland, Virginia), 171.88; zone 2 (Connecticut, New York, New Jersey, and Pennsylvania), 170.10; zone 1 (New England except Connecticut), 169.78.

Arranging the different zones in order of variability as measured by the standard deviation, we have the following: Zone 12 (Desert States), 6.686; zone 2 (Middle States), 6.622; zone 11 (the Dakotas and Mountain States), 6.612; zone 9 (Mississippi, Louisiana), 6.572; zone 4 (Delaware, Maryland, Virginia), 6.566; zone 7 (Central States), 6.500; zone 5 (Southeastern States), 6.484; zone 1 (New England, except Connecticut), 6.460; zone 13 (Pacific and Northwestern States), 6.412; zone 8 (Missouri, Arkansas, Kansas, Oklahoma), 6.356; zone 10 (Texas), 6.304. Thus it appears that, as other parts of the study have shown, Texas contains among the tallest men of the country and they prove to be the most homogeneous in stature. New England contains the shortest men and they are fairly uniform in this respect. The greatest variability occurs in the Desert States of New Mexico and Arizona, where there is an admixture of Indians, Mexicans, and white Americans of European origin.

Table CXXXIV–B gives the proportional distribution of the different statures for each of the different zones. Thus for zones 1, 2, and 7 the modal stature is 170–171 centimeters; for zones 4, 5, 8, 9, 10, and 13 it is 172–173 centimeters; for zones 11 and 12 it is 174–175 centimeters. Thus Table CXXXIV–B tells the quartermaster what proportion out of every 1,000 suits of uniforms sent to the different zones should fit men of the respective statures.

Since, however, the blouses and breeches are separate garments, it is more important to know the proportion of men of different chest dimensions and waist dimensions, respectively, that occur in the different zones. The required information is given in Tables CXXXVI and CXXXVII. Table CXXXVI gives the absolute number of men found with the different chest circumferences in the different distribution zones. It also gives for each zone per 1,000 men the number having each of the classes of chest circumference. It shows also what proportion of sizes of each 1,000 blouses distributed should be sent to each of the distribution zones in order to meet the size requirements of men of these zones. Thus Table CXXXVI–B states that to zone 1 there should be distributed in every 1,000 blouses 285 of chest size 90–94, 382 of chest size 85–89, 189 of chest size 80–84. On the other hand, to zone 11 there should be sent 363 blouses of chest size 90–94, 324 of chest size 85–89, and only 124 of chest size 80–84. To zone 12 there should be sent only 8 blouses of size 100–104, whereas to zone 11, 23 per 1,000 blouses of size 100–104 should be sent. To zone 4 there should be sent 30 blouses per 1,000 of size 75–79, whereas to zone 11 there should be sent only 10 such.

Table CXXXVI–C states that in distributing 1,000 blouses of size 60–64, 512, or over half of them, should go to zone 2; 268, or over one-fourth, should go to zone 7, the remaining one-fourth should be distributed as indicated, but none at all should be sent to zones 9, 10, 12, and 13. Of 1,000 blouses of size 65–69, one-third of all should be sent to zone 7; 278, or over one-fourth, to zone 2; the remainder will be variously distributed as indicated, but only 1 or 2 should be sent to zones 4, 11, and 12. Of 1,000 blouses of size 75–79, 284 should be sent to zone 7; another one-fourth, precisely 265, should be sent to zone 2; 130 should be sent to zone 5; but only 9 should be sent to zone 11, and 3 to zone 12. Similarly the tables give the proper distribution for all of the different sizes of blouses.

The sizes of breeches are determined primarily by waist circumference. Distribution by waist circumference is shown in Table CXXXVII. This table gives the absolute frequency by zones of occurrence of the different waist circumference in the 101,576 men measured. The table indicates the proper proportion of the different sizes of breeches in a shipment of 1,000 to any zone. Thus, in a shipment of 1,000 breeches to zone 1, 4 should be of waist circumference 60–64, 60 of waist circumference 65–69, 283 of waist 70–74, 368 of waist 75–79, 185 of waist 80–84, 67 of waist 85–89, 22 of waist 90–94, 7 of waist 95–99, and 3 of waist 100–104. Similar data are given for each zone.

Table CXXXVII–C shows the proper distribution to the different zones of 1,000 breeches of different waist circumference sizes. Thus of 1,000 breeches of waist 60–64, 331, or about one-third of all, should be sent to zone 7; 309 to zone 2; 9 to zone 9, etc. It may be pointed out, however, that there is reason for thinking that the men measured may not constitute the real proportion of recruits drawn from the different zones. If the total number of men measured in the various zones be divided by the total number of men drafted from these different zones, as given in the report of the Provost Marshal General, there will be obtained for each zone the proportion of drafted men who were measured at demobilization.

Table LXXIII gives the distribution of different colored races measured in the various zones. This table, for many reasons made clear in the last sections, must not be taken as an actual relative frequency of the different colored races in these zones. It appears that the most colored men were measured from zone 5, including the Southeastern States. The next largest proportion is in zone 9, including Louisiana and Mississippi, although an equally large number was measured from zone 4. An attempt was made to distinguish the mulattoes, quadroons, and sambos, but it can not be hoped that this attempt succeeded. A large proportion of sambos, or three-fourths blacks, were measured from zone 9, Louisiana and Mississippi, and a smaller proportion from zone 5, the Southeastern States. On the other hand, more mulattoes and quadroons were measured from zone 5 than from zone 9.

The distribution of blouse and breeches groups for white and colored troops taken separately are shown in Tables CXXIX–CXXXII.

G. DISTRIBUTION OF EYE COLOR.

Eye color is of importance as a rough index of race. Thus the so-called Nordic race, which has its home in northwestern Europe, is characterized by clear blue eyes. Nearly all other peoples have brown eyes. Hybrids between blue and brown eyed people have light brown or blue eyes with brown spots. Table 130 shows that absolutely the largest number of clear blue eyes was observed from zone 7, but there were more eyes observed from this zone than from any other. There were fewest clear blue eyes from zone 12, but there were fewer eyes examined from this zone than from any other. The absolute numbers, therefore, are not very significant. More important is the proportion of different types found in the different zones.

Table 130–B gives also the proportion of different eye colors in the different zones. Taking the figures as they stand, it appears that the largest proportion of clear blue eyes is found in zone 13 (the Pacific and northern Rocky Mountain States). Next largest percentage is in zone 11, the central Rocky Mountain States, the Dakotas and Nebraska. Third comes zone 7 (42 per cent blue-eyed); this territory has a large proportion of Scandinavians. The smallest rate for clear blue eyes (15 per cent) is found in zone 5, which includes the Southeastern States with their large proportion of colored population. In this zone, moreover, there is an exceptionally large proportion (42 per cent) of persons found with blue eyes having brown spots. It seems possible that the proportion of blue eyes with brown spots found is due to special (and justifiable) precaution of the anthropologist in charge at Camp Gordon in warning his recorders to look for brown spots in apparently blue eyes. If we combine clear blue with blue with brown spots, then the proportion of such eyes in the whole population is about 62 per cent. In zone 13 it is 65 per cent; in zone 11, 70 per cent; in zone 7, 69 per cent; in zone 5, 57 per cent; in zone 4, 53 per cent, which is the lowest proportion of clear blue and blue with brown spots found in any zone. Of light brown eyes the highest rate as given is 45 per cent in zone 9, including Mississippi and Louisiana, of which the population is over one-third colored. Very high rates are found also in zone 5, the Southwest; zone 4, Virginia and Maryland; zone 10, Texas. Low rates are found in zone 11, the central Rocky Mountain States; and zone 7, the Central States, including Minnesota, Wisconsin, and Iowa. Of the dark-brown eyes, the largest rate is found in zone 12, Arizona and New Mexico, and this doubtless is due to the influence of the Indian race here. Next is zone 10, and next zone 8, where the Indian rate is high. Low rates are found in zone 5 of the Southeast, zone 1, New England, and zone 11, the central Rocky Mountain States.

(*a*) *Clear blue eyes*.—The significance of these results will be clearer from a study of Table CXXXVIII, which gives the proportion of eye color by States. Table 123 gives the distribution of clear blue eye color by States. The States are arranged in descending order of the proportion of clear blue eyes observed. At the top of the list stands Alaska, with a rate of 54 per cent; next Wisconsin, also with about 54 per cent. This is the State in which in certain sections one-fourth of the inhabitants are Scandinavians. Next comes the State of Maine with 53 per cent; the largest foreign element in Maine is French Canadian, about 13 per cent in one section; otherwise the immigrants are chiefly English Canadians; there are few representatives of south-eastern Europe. Vermont stands next with 51 per cent. Since Maine and Vermont contain a large proportion of French Canadians, it seems probable that the proportion of blue eyes is high among them. Next stands Minnesota with a high Scandinavian population, and then comes Oregon with many Scandinavians and Germans. Massachusetts follows with 49 per cent clear blue eyes. This also has a large representation of French Canadians and Irish. Next comes Michigan and then the State of Washington, both with many representatives from northwestern Europe. At the bottom of the list stands Florida, with only 4 per cent of clear blue eyes among the population. This population includes Negroes, mulattoes, and a considerable number of Cubans and West Indians, some probably who have received their brown eye color from Negro stock. It is perhaps not strange that this State, with its dense Negro population and with its former Spanish blood and its proximity to Cuba, should be the darkest of all the States in respect to eye color. Next to the bottom stands Georgia, which is geographically adjacent to Florida. The numbers of Nevada may be excluded, since there are only two individuals under consideration. This is followed by Alabama, Tennessee, South Carolina, Louisiana, Kentucky, Missouri, North Carolina, and Mississippi, all but one Southern States. The proportion of clear blue eye is, therefore, smallest in those States which have a large proportion of Negro population. Consequently, in general terms, the proportion of clear blue eyes diminishes with latitude. This is to be explained on the ground that blue eye color rose in northern Europe, and that immigrants from northern Europe settled the northern parts of our country; and, also, that the percentage of the Negro population there is small (see Plate XXX, Fig. 7, p. 295).

TABLE 123.—*Absolute and relative numbers of veterans with clear blue eyes, by States of nativity in order of incidence, demobilization, 1919.*

State.	Number of cases.	Ratio.	State.	Number of cases.	Ratio.
Alaska	7	538.46	New York	3,845	416.13
Wisconsin	1,441	538.29	Arkansas	1,064	412.08
Maine	365	525.94	Colorado	93	409.69
Vermont	229	512.30	Pennsylvania	4,381	401.89
Minnesota	969	496.67	California	109	391.31
Oregon	529	494.39	Wyoming	31	387.50
Massachusetts	2,365	493.22	District of Columbia	87	376.62
Michigan	1,821	488.46	Texas	1,511	345.45
Washington	986	486.92	Maryland	387	338.88
Utah	51	485.71	Arizona	43	330.77
New Hampshire	201	485.51	Indiana	1,265	319.85
Idaho	77	469.51	Virginia	614	318.13
Connecticut	464	465.39	New Mexico	69	300.00
Illinois	3,112	463.92	Mississippi	582	276.88
Rhode Island	186	461.54	North Carolina	479	263.91
Montana	122	458.65	Missouri	651	228.66
North Dakota	158	441.34	Kentucky	565	192.56
Oklahoma	1,008	435.23	Louisiana	362	174.12
New Jersey	1,374	430.99	South Carolina	128	154.40
Nebraska	353	428.92	Tennessee	426	151.33
West Virginia	726	427.82	Alabama	246	127.33
Ohio	3,027	426.70	Nevada	2	111.11
Kansas	433	426.60	Georgia	330	96.97
South Dakota	177	425.48	Florida	97	94.73
Delaware	127	423.33			
Iowa	679	421.74	Total	38,354	374.69

(*b*) *Blue eyes with brown spots.*—The distribution of eye color "blue with brown spots" is given in Table 124. In some ways this affords a remarkable reversal of the order of the States shown in Table 123, for here such States as Tennessee, Kentucky, Missouri, Alabama, Florida, and Georgia, stand at the top of the list, constituting from 42 to 52 per cent of the population. It is impossible to say, however, how much of this large proportion of blue with brown spots found is due to special effort to find it on the part of the observers. The lowest proportion of blue with brown spots is found in certain of the New England States; in Rhode Island only 10 per cent; Massachusetts, 11 per cent; Vermont, 11 per cent; Maine, 13 per cent; New York and Connecticut follow with less than 14 per cent. The proportion of blue and brown spots found in Louisiana is small, 15 per cent, which may in part be accounted for by the fact that men from this State were observed at Camp Shelby, where another anthropologist was in charge, who was perhaps less careful to instruct his observers to note the presence of brown spots upon the blue iris. However, it must be admitted that the proportion of blueness of iris found in men from Louisiana is low and it seems probable that not only the colored population, but also the South French blood, which settled there, has had its influence in depressing the total amount of blue eye color found in that State.

TABLE 124.—*Absolute and relative numbers of veterans with blue eyes with brown spots, by States of nativity in order of incidence, demobilization, 1919.*

State.	Number of cases.	Ratio.	State.	Number of cases.	Ratio.
Tennessee	1,463	519.72	Wyoming	15	187.50
Kentucky	1,510	514.65	Wisconsin	474	177.06
Missouri	1,420	498.77	Oklahoma	408	176.16
Alabama	881	456.00	Virginia	339	175.65
Florida	443	432.62	Utah	18	171.42
Georgia	1,433	421.10	Michigan	626	167.92
Indiana	1,616	408.60	New Mexico	38	165.21
South Carolina	296	357.05	Pennsylvania	1,795	164.67
North Dakota	101	282.12	Washington	332	163.95
Iowa	451	280.12	Arkansas	423	163.82
Nevada	5	277.77	Montana	41	154.13
South Dakota	114	274.03	Alaska	2	153.85
Nebraska	218	264.88	Oregon	164	153.27
Minnesota	485	248.59	Louisiana	315	151.51
Arizona	32	246.15	New Jersey	477	149.62
Kansas	248	244.33	District of Columbia	34	147.19
Delaware	71	236.66	New Hampshire	59	142.51
California	108	223.60	Idaho	23	140.24
Mississippi	435	206.95	Connecticut	138	138.42
Texas	904	206.68	New York	1,247	134.95
Illinois	1,363	203.19	Maine	90	129.68
Colorado	46	202.64	Vermont	49	109.62
North Carolina	366	201.65	Massachusetts	521	108.66
West Virginia	335	197.41	Rhode Island	41	101.74
Maryland	222	194.40			
Ohio	1,336	188.33	Total	23,571	229.79

(*c*) *Brown eyes.*—Considering dark brown eye color, we find that Louisiana stands at the very head of the table with 48 per cent of her soldiers placed in that category; a relatively low proportion (19 per cent) from Louisiana were found with light brown eyes. In the table (126) of dark brown eyes, next to Louisiana, stand North Carolina, Virginia, District of Columbia, Georgia, Mississippi, Florida, and South Carolina; and here again the Southern States have an excess of dark brown eyes in the population, due to the colored race. The Southern States for the most part stand near the bottom of the list of light brown eyes, although Louisiana has a median position, with a rate of 19 per cent. Of dark brown eyes, Maine shows the smallest rate, 8.6 per cent; Vermont slightly more, 9.2 per cent; Wisconsin, Idaho, Minnesota, all have less than 11 per cent. New York stands far above the average in the proportion of dark brown eyes found in the population; Pennsylvania is slightly below the average, and Illinois and Michigan are far below the average, with only 15 per cent.

TABLE 125.—*Absolute and relative numbers of veterans with light brown eyes, by States of nativity in order of incidence, demobilization, 1919.*

State.	Number of cases.	Ratio.	State.	Number of cases.	Ratio.
Nevada	7	388.89	Oklahoma	404	174.43
Idaho	46	280.49	California	84	173.91
Wyoming	20	250.00	Oregon	184	171.96
New Hampshire	101	243.96	Maryland	191	167.25
Montana	64	240.60	Kansas	167	164.53
New Mexico	54	234.78	North Dakota	58	162.01
Maine	162	233.43	Tennessee	442	157.02
Utah	24	228.57	Iowa	251	155.90
Vermont	99	221.48	South Carolina	128	154.40
Pennsylvania	2,409	220.99	South Dakota	63	151.44
Rhode Island	89	220.84	Nebraska	124	150.67
Massachusetts	1,043	217.52	Arkansas	381	147.56
New Jersey	665	208.59	Minnesota	280	143.51
Colorado	47	207.05	Florida	146	142.58
Ohio	1,387	195.52	Alabama	274	141.82
Michigan	728	195.27	Georgia	460	135.17
Connecticut	192	192.57	District of Columbia	31	134.20
West Virginia	317	186.80	Virginia	243	125.90
Louisiana	387	186.14	North Carolina	210	115.70
New York	1,716	185.71	Indiana	450	113.78
Arizona	24	184.61	Delaware	29	96.67
Illinois	1,221	182.02	Kentucky	280	95.43
Wisconsin	483	180.42	Missouri	266	93.43
Texas	787	179.92	Alaska	1	76.92
Mississippi	375	178.40			
Washington	361	178.27	Total	17,955	175.05

TABLE 126.—*Absolute and relative numbers of veterans with dark brown eyes, by States of nativity in order of incidence, demobilization, 1919.*

State.	Number of cases.	Ratio.	Ratio.	Number of cases.	Ratio.
Louisiana	1,006	483.88	Ohio	1,297	182.83
North Carolina	734	404.41	Colorado	41	180.61
Virginia	723	374.61	Oregon	190	177.57
District of Columbia	79	341.99	Missouri	471	165.43
Georgia	1,138	334.41	Washington	334	164.94
Mississippi	694	330.16	Tennessee	462	164.12
Florida	328	320.31	Wyoming	13	162.50
South Carolina	257	310.01	Kansas	157	154.68
New Mexico	68	295.65	Massachusetts	739	154.12
Maryland	331	289.84	Nebraska	126	153.09
Arkansas	701	271.50	Indiana	598	151.19
Alabama	515	266.56	Illinois	995	148.33
Texas	1,145	261.77	Michigan	538	144.31
New York	2,384	258.01	South Dakota	60	144.23
Delaware	72	240.00	Montana	38	142.86
Alaska	3	230.77	Iowa	220	136.65
Arizona	30	230.77	North Dakota	41	114.52
Nevada	4	222.22	Utah	12	114.28
Oklahoma	486	209.84	New Hampshire	47	113.53
Rhode Island	84	208.44	Minnesota	211	108.15
Pennsylvania	2,257	207.05	Idaho	17	103.66
New Jersey	653	204.83	Wisconsin	273	101.98
California	97	200.83	Vermont	41	91.72
Connecticut	198	198.60	Maine	60	86.45
Kentucky	545	185.75			
West Virginia	311	183.27	Total	21,824	212.76

(*d*) *Eye color in eight European races.*—Table 127 shows the absolute and proportional occurrence of eye color in each of the eight races, of each of which more than 1,000 men were observed. According to this table the Irish show the largest percentage of clear blue eyes, the Scotch second, followed by the Polish, English, German, French, Hebrew, and Italian. If we combine clear blue and blue with brown spots, the highest proportion of blue eyes still remains with the Irish, 73 per cent; next come the Scotch with 71 per cent; next the Polish and English, each about 66 per cent; then come the German with 65 per cent, French with 49 per cent, Hebrews 37 per cent, and Italian 20 per cent. Dark brown eyes naturally run for the most part in inverse order. Italians stand at the head with 51 per cent; Hebrews next with 38 per cent, French 25 per cent, Germans 15 per cent, English 15 per cent, Scotch 14 per cent, Polish 13 per cent, and Irish 11 per cent.

TABLE 127.—*Comparative frequency distribution of eye color in each of eight European races, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Clear blue.	Blue and brown spots.	Light brown.	Dark brown.
English	4,194	1,852	920	794	628
Scotch	2,049	978	484	310	277
Irish	6,144	3,279	1,224	964	677
German	7,059	3,008	1,572	1,400	1,079
French	1,429	490	212	376	351
Italian	3,486	389	319	999	1,779
Polish	2,399	1,124	480	485	310
Hebrew	1,685	389	232	426	638
	28,445	11,509	5,443	5,754	5,739
	225				
Total	28,670				

SECTION B: RACE DISTRIBUTION PER 1,000 OF EACH EYE COLOR.

Race.	Total.	Clear blue.	Blue and brown spots.	Light brown.	Dark brown.
English	147.44	160.92	169.03	137.99	109.43
Scotch	72.03	84.98	88.92	53.88	48.27
Irish	216.00	284.91	224.88	167.54	117.97
German	248.16	261.36	288.81	243.31	188.02
French	50.24	42.58	38.95	65.35	61.17
Italian	122.55	33.80	58.61	173.62	309.98
Polish	84.34	97.66	88.19	84.29	54.02
Hebrew	59.24	33.80	42.62	74.04	111.17
Total	1,000.00	1,000.01	1,000.01	1,000.02	1,000.03

SECTION C: EYE-COLOR DISTRIBUTION PER 1,000 OF EACH RACE.

Race.	Total.	Clear blue.	Blue and brown spots.	Light brown.	Dark brown.	Total.
English	147.44	441.57	219.37	189.32	149.74	1,000
Scotch	72.03	477.29	236.21	151.30	135.20	1,000
Irish	216.00	533.70	199.21	156.89	110.20	1,000
German	248.16	426.14	222.69	198.32	152.85	1,000
French	50.24	342.90	148.35	263.12	245.62	1,000
Italian	122.55	111.59	91.51	286.56	510.32	1,000
Polish	84.34	468.50	200.08	202.18	129.23	1,000
Hebrew	59.24	230.86	137.69	252.81	378.63	1,000

(*e*) *Comparison with Civil War data.*—These results may be compared with those given by Baxter and Gould for Civil War recruits. According to Baxter,[1] the examination of 9,649 Englishmen gave a ratio of 71 per cent for blue or gray eyes combined with light hair, and 29 per cent for dark or hazel eyes and dark hair. Assuming that the examiners of recruits did not distinguish between clear blue eyes and those with small brown spots, the ratio of 71 per cent in Civil War times is to be contrasted with 66 per cent among the English at demobilization of the troops of the World War.

The statistics of Baxter for 28,995 Irishmen give a proportion of blue or gray eyes combined with light hair of 70 per cent, to be compared with 73 per cent of our statistics. Baxter finds in an examination of 29,600 Germans a ratio of blue or gray eyes and light hair of 69 per cent; our statistics give 65 per cent. There are copied from Gould[2] (pp. 196–201) in our Tables 128 and 129 data concerning the color of the eyes of United States soldiers by States and of volunteers by nativity.

TABLE 128.—*Color of eyes: Proportional numbers for different States in 1865* (*Gould,*[2] *p. 200*).

State of enlistment.	Blue.	Gray.	Hazel.	Dark.	Black.	Total.
Maine	458	171	193	70	108	1,000
New Hampshire	494	193	168	75	70	1,000
Vermont	555	148	82	98	117	1,000
Massachusetts	506	184	173	76	61	1,000
Connecticut	476	228	124	103	69	1,000
New York	467	255	75	140	63	1,000
Pennsylvania	319	356	142	150	33	1,000
West Virginia	430	258	84	126	102	1,000
Kentucky	466	220	91	97	126	1,000
Ohio	393	293	120	112	82	1,000
Indiana	422	258	139	94	87	1,000
Illinois	447	245	121	106	81	1,000
Michigan	522	224	93	85	76	1,000
Wisconsin	533	202	106	93	66	1,000
Iowa	462	239	129	86	84	1,000
Missouri	460	245	115	107	73	1,000
Total	449	243	128	104	76	1,000

TABLE 129.—*Color of eyes: Proportional numbers for different nativities in United States in 1865* (*Gould,*[2] *p. 201*).

Nativity.	Blue.	Gray.	Hazel.	Dark.	Black.	Total.
Six New England States	499	175	150	83	93	1,000
New York, New Jersey, Pennsylvania	415	280	119	126	60	1,000
Ohio, Indiana	417	266	127	102	88	1,000
Michigan, Wisconsin, Illinois	449	237	121	96	97	1,000
Slave States*	432	249	112	110	97	1,000
Kentucky and Tennessee	464	221	105	94	116	1,000
Free States west of the Mississippi	396	284	159	84	77	1,000
Slave States west of the Mississippi	435	243	128	96	98	1,000
British America exclusive of Canada	464	203	194	78	61	1,000
Canada	432	218	154	107	89	1,000
England	472	238	142	94	54	1,000
Scotland	478	254	129	83	56	1,000
Ireland	505	274	119	69	33	1,000
France, Belgium, and Switzerland	328	225	192	151	104	1,000
Germany	445	262	107	141	45	1,000
Scandinavia	684	172	63	60	21	1,000
Spain, Portugal, and Spanish America	239	185	164	197	215	1,000
Miscellaneous	349	250	149	158	94	1,000
Total	449	243	128	104	76	1,000

* Not including Kentucky and Tennessee and Slave States west of the Mississippi.

A comparison of the proportions of the population having different colored eyes may be made between Civil War times and those of the demobilization in the recent war. The order of proportion of blue eye color in the Civil War in the different States is as follows: Vermont, 555; Wisconsin, 533; Michigan, 522; Massachusetts, 506; New Hampshire, 494; Connecticut, 476; New York, 467; Kentucky, 466; Iowa, 462; Missouri, 460; Maine, 458; Illinois, 447; West Virginia, 430; Indiana, 422; Ohio, 393; Pennsylvania, 319. The average for the States named is 449 in Civil War times, as contrasted with 375 in the World War. This suggests a marked decrease in the proportion of blue eyes, namely, from 45 to 37 per cent. However, it is to be remembered that the Southern States were not included in the Civil War statistics, and these are just the States that show the smallest proportion of clear blue eyes. The inclusion of such States would inevitably tend to lower the average in the World War statistics. Indeed, if we compare the States which are mentioned both in the Civil War records and in those of the World War we find some cases of marked agreement. Thus Wisconsin was 533; is 539, per 1,000, blue-eyed; Vermont was 555, and has become darker, 512; Massachusetts was 506, has become a trifle darker, 493; Michigan has fallen from 522 to 488; New Hampshire from 494 to 486; Connecticut from 476 to 465; Illinois has increased from 447 to 463, due, no doubt, to the coming in of Scandinavians in recent decades. West Virginia has remained nearly constant at 430 then and 428 now. Ohio was 393, is 427; New York was 467, is 416; a great decrease, due to the immigration from the south and east of Europe. Pennsylvania, on the other hand, has increased enormously from 319 to 401, the meaning of which is not perfectly clear, but is it possibly due to the coming in of large numbers of blue-eyed Poles and Lithuanians. Kentucky was 466 and is 193, which indicates that the recruits from Kentucky to the Northern Army in Civil War times were a highly selected lot of Nordics from the mountain regions and largely excluded Negroes. Indiana has fallen from 447 to 320, again a marked decline.

Since the categories are not the same in 1866 and 1919, it is difficult to compare the darker eyes. It is clear that the West Virginians, however, had a prevalence of dark eye color which is hardly recognized to-day. In general, persons who have much pigment in the iris are more numerous in the United States to-day than they were 55 years ago. It is possible to compare some of the races described in Gould's book with those examined in 1919. Among the English the proportion of blue eyes was 472, is now 442; among the Scotch, then 478, now 477; among the Irish, then 505, now 534; among the French, Belgians, and Swiss, then 328, now 343; among the Germans, then 445, now 426. If we add together the "dark" and the "black" eye colors of Gould, we have a total for the English of 148, as opposed to 150 of our "dark browns"; for the Scotch, 139, as opposed to 135 in 1919; for the Irish, 102, as opposed to 110 at the later date; for the French, 255, as opposed to 246; for the Germans 186, as opposed to 153. It is clear that the dark and black are nearly equivalent to our dark brown, and it is probable that Gould's hazel corresponds nearly with our light brown as well as with our blue with brown spots. The comparison is of interest, showing the comparative stability of proportions in racial populations. But there have been great changes in sections of our country due to extensive immigration.

TABLE 130.—*Comparative frequency distribution of eye color by Q. M. C. distribution zones, based on nativity of demobilized troops.*

SECTION A: ABSOLUTE NUMBERS.

Eye color.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
Clear blue	32,345	1,996	7,421	1,050	1,764	12,002	3,175	952	1,452	774	112	1,647
Blue with brown spots	23,947	1,174	4,395	623	4,820	7,864	2,198	767	865	479	70	692
Light brown	23,585	1,236	5,644	1,060	4,082	5,607	1,679	1,848	1,243	348	78	760
Dark brown	10,528	496	2,548	425	916	3,137	1,133	519	579	185	98	492
Number measured	90,405	4,902	20,008	3,158	11,582	28,610	8,185	4,086	4,139	1,786	358	3,591
Not measured	11,928											
Total	102,333											

SECTION B: EYE-COLOR DISTRIBUTION PER 1,000 OF EACH ZONE.

Eye color.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
Clear blue	357.78	407.18	370.90	332.49	152.31	419.50	387.90	232.99	350.81	433.37	312.85	458.65
Blue with brown spots	264.89	239.49	219.66	197.28	416.16	274.87	268.54	187.71	208.99	268.19	195.53	192.70
Light brown	260.88	252.14	282.08	335.66	352.44	195.98	205.13	452.28	500.31	194.85	217.88	211.64
Dark brown	116.45	101.18	127.35	134.58	79.09	109.65	138.42	127.02	139.89	103.58	273.74	137.01
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

H. DISTRIBUTION OF HAIR COLOR.

(*a*) *General discussion.*—The directions given to the anthropologists called for the use of the following terms in describing hair color: Flaxen, light brown, medium brown, dark brown, red, red and black. The last was explained to mean the presence of melanic pigment mixed with the red as opposed to pure red. The terms used by Gould are light, brown, dark, black, red, sandy, and gray. There were 4,000, or 1 per cent of all, in Gould's statistics returned as gray. In our statistics the term gray was not used, as the color before graying was to be recorded. Tables 131–135 show the proportion of cases of the different hair colors in the different States. In each table the States are arranged in descending order of frequency of the stated hair color.

(*b*) *Flaxen hair.*—Table 131 gives the list of States in descending order of the population having flaxen hair. From this table it appears that there are proportionally more persons with flaxen hair in Oregon than any other State, 28 per cent; Montana follows with 23 per cent; and Utah with 14 per cent. Minnesota and South Dakota have about 10 per cent each, and this result is largely due to the Scandinavian population. Then follow Alaska, Iowa, and Michigan. At the opposite end of the table stand the Southern Atlantic and Gulf States, with their large Negro and mulatto populations; Florida, Alabama, and Georgia, each with less than 1 per cent; South Carolina, Louisiana, Mississippi, North Carolina, and Kentucky with 2 per cent or less. In the middle of the series lie the New England States and the more densely populated States of the Mississippi Valley, such as Ohio, New Hampshire, Connecticut, Indiana, Wisconsin, Massachusetts, Vermont, Maine, Illinois, Pennsylvania, New Jersey, Rhode Island, Maryland, and New York. One may be quite sure that the presence of flaxen hair is indicative of Nordic blood, and one draws the conclusion that there is a larger proportion of this in Oregon, Montana, and Utah than in the other States. The relative absence of light hair in the Southern States is to be attributed to the colored part of the population (see Plate XXX, Figs. 1, 8, p. 295).

TABLE 131.—*Absolute and relative number of veterans with flaxen hair, by States of nativity in order of incidence, demobilization, 1919.*

States.	Number of cases.	Ratios.	States.	Number of cases.	Ratios.
Oregon	302	282.24	Illinois	329	49.05
Montana	62	233.08	Pennsylvania	529	48.53
Utah	15	142.86	New Mexico	11	47.83
Minnesota	195	99.95	New Jersey	152	47.68
South Dakota	40	96.15	Rhode Island	19	47.15
Alaska	1	76.92	Maryland	53	46.41
Iowa	122	75.78	Oklahoma	103	44.47
Michigan	280	75.11	California	20	41.41
Texas	310	70.87	New York	347	37.55
North Dakota	25	69.83	Virginia	67	34.72
Idaho	11	67.07	District of Columbia	8	34.63
Ohio	472	66.54	Missouri	97	34.07
Wyoming	5	62.50	Kentucky	63	21.47
Nebraska	51	61.97	North Carolina	38	20.94
Colorado	14	61.67	Mississippi	43	20.46
Kansas	62	61.08	Arizona	2	15.38
New Hampshire	25	60.39	Tennessee	40	14.21
Connecticut	60	60.18	Louisiana	29	13.95
Indiana	237	59.92	South Carolina	9	10.86
Wisconsin	157	58.65	Delaware	3	10.00
Massachusetts	281	58.60	Georgia	29	8.52
Vermont	26	58.17	Alabama	16	8.28
Maine	38	54.76	Florida	8	7.81
Washington	107	52.84			
West Virginia	88	51.86	Total	5,132	50.03
Arkansas	131	50.74			

TABLE 132.—*Absolute and relative number of veterans with red hair, by States of nativity in order of incidence, demobilization, 1919.*

States.	Number of cases.	Ratios.	States.	Number of cases.	Ratios.
Montana	14	52.63	Pennsylvania	136	12.48
Oregon	32	29.91	Indiana	49	12.39
Wyoming	2	25.00	Idaho	2	12.20
Minnesota	40	20.50	Oklahoma	28	12.09
New Hampshire	8	19.32	Arkansas	31	12.01
Utah	2	19.05	Missouri	34	11.94
North Dakota	6	16.76	Vermont	5	11.19
Maryland	19	16.64	Michigan	40	10.73
Florida	17	16.60	Virginia	20	10.36
Washington	33	16.30	Alabama	20	10.35
Illinois	109	16.25	California	5	10.35
Connecticut	16	16.05	South Dakota	4	9.62
New Jersey	50	15.68	Ohio	67	9.44
Texas	68	15.55	Iowa	15	9.32
New York	138	14.94	North Carolina	14	7.71
Rhode Island	6	14.89	Wisconsin	20	7.47
Massachusetts	67	13.97	South Carolina	6	7.24
Tennessee	39	13.85	Mississippi	15	7.14
Kansas	14	13.79	Delaware	2	6.67
West Virginia	23	13.55	Louisiana	13	6.25
Nebraska	11	13.37	District of Columbia	1	4.33
Kentucky	39	13.29	Maine	3	4.32
Colorado	3	13.22			
Georgia	43	12.64	Total	1,329	12.96

(*c*) *Dark brown hair.*—Turning to the dark brown hair, we find that the Southern States are at the head of the list, North Carolina and Louisiana at the very top, and Virginia, Mississippi, Maryland, South Carolina, and Georgia stand above the average in percentage of population with dark brown hair. On the other hand, there is less of this in Montana and Oregon relatively than in any other States (see Plate XXX, Fig. 5, p. 295).

(*d*) *Red hair.*—Red hair was so relatively uncommon that it becomes almost futile to compare the proportions secured. On the face of the returns there are proportionately more red heads in Montana than in any other State, and Oregon comes second—that is, there is a close correlation between the proportion of flaxen and of red hair. However, Maine stands near the middle of the series for flaxen hair and at the bottom of the series for red, indicating that the association is not absolute. The Southern States tend to lie at the bottom of the list of the rates of red hair. Thus Louisiana, Mississippi, South Carolina, North Carolina, Alabama, and Virginia are markedly below the mean of the whole population. On the other hand, Florida stands relatively high at 1.6 per cent (mean of United States, 1.3 per cent). (See Plate XXX, Fig. 1, p. 295).

TABLE 133.—*Absolute and relative number of veterans with light brown hair, by States of nativity in order of incidence, demobilization, 1919.*

States.	Number of cases.	Ratios.	States.	Number of cases.	Ratios.
Alaska	5	384.62	Mississippi	411	195.53
Nevada	6	333.33	Arizona	25	192.31
Wisconsin	880	328.73	Kentucky	563	191.89
Michigan	1,190	319.21	New York	1,765	191.02
Ohio	2,183	307.72	Arkansas	490	189.78
Minnesota	587	300.87	Delaware	55	183.33
Illinois	2,000	298.15	Maryland	201	176.01
North Dakota	102	284.92	Tennessee	488	173.36
Utah	29	276.19	District of Columbia	40	173.16
Wyoming	22	275.00	Maine	118	170.03
Idaho	45	274.39	Texas	742	169.64
Washington	550	271.60	Montana	45	169.17
Nebraska	219	266.10	Massachusetts	804	167.67
Iowa	422	262.11	New Hampshire	67	161.84
California	126	260.87	Connecticut	160	160.48
South Dakota	107	257.21	Virginia	309	160.10
Kansas	261	257.14	Alabama	287	148.55
Indiana	995	251.58	Florida	152	148.44
Missouri	646	226.91	South Carolina	110	132.69
New Jersey	723	226.79	Georgia	449	131.94
West Virginia	382	225.10	Louisiana	270	129.87
Oregon	234	218.69	Rhode Island	52	129.03
Colorado	49	215.86	North Carolina	228	125.62
Pennsylvania	2,329	213.65	New Mexico	28	121.74
Vermont	90	201.34			
Oklahoma	465	200.78	Total	22,506	219.40

TABLE 134.—*Absolute and relative number of veterans with medium brown hair, by States of nativity in order of incidence, demobilization, 1919.*

States.	Number of cases.	Ratios.	States.	Number of cases.	Ratios.
Alaska	7	538.46	Arkansas	471	182.42
Tennessee	1,255	445.83	Mississippi	381	181.26
Montana	116	436.09	California	87	180.12
Alabama	782	404.76	Delaware	54	180.00
Oregon	414	386.92	Massachusetts	849	177.06
Kentucky	1,083	369.12	Michigan	646	173.28
Missouri	1,003	352.30	Utah	18	171.43
Georgia	1,183	347.63	Ohio	1,176	165.77
Florida	351	342.77	Vermont	73	163.31
South Carolina	261	314.84	Maryland	186	162.87
Indiana	1,241	313.78	Texas	712	162.78
Wisconsin	686	256.26	Arizona	20	153.85
Illinois	1,649	245.83	North Carolina	278	153.17
Wyoming	19	237.50	Idaho	25	152.44
Iowa	376	233.54	Pennsylvania	1,588	145.67
Washington	450	222.22	West Virginia	244	143.78
South Dakota	92	221.15	Virginia	275	142.49
Minnesota	430	220.40	New Jersey	431	135.19
North Dakota	78	217.88	New Mexico	31	134.78
Maine	147	211.82	New York	1,224	132.47
Rhode Island	84	208.44	Louisiana	237	114.00
New Hampshire	85	205.31	District of Columbia	23	99.57
Nebraska	162	196.84	Nevada	1	55.56
Colorado	44	193.83			
Oklahoma	441	190.41	Total	21,656	213.12
Connecticut	187	187.56			

TABLE 135.—*Absolute and relative number of veterans with dark brown hair, by States of nativity in order of incidence, demobilization, 1919.*

States.	Number of cases.	Ratios.	States.	Number of cases.	Ratios.
North Carolina	1,207	665.01	Arkansas	1,146	443.84
Louisiana	1,360	654.16	California	213	440.99
New Mexico	144	626.09	Colorado	100	440.53
District of Columbia	143	619.05	Nebraska	350	425.27
Nevada	11	611.11	Ohio	3,007	423.88
Virginia	1,143	592.23	Kansas	425	418.72
New York	5,212	564.07	Alabama	776	401.66
Delaware	168	560.00	Washington	811	400.49
Arizona	72	553.85	Michigan	1,484	398.07
Mississippi	1,159	551.38	Iowa	622	386.34
Rhode Island	219	543.42	North Dakota	134	374.30
Maryland	604	528.90	Utah	39	371.43
Pennsylvania	5,703	523.16	South Dakota	154	370.19
New Jersey	1,667	522.90	Kentucky	1,081	368.44
Massachusetts	2,498	520.96	Indiana	1,343	339.57
Connecticut	518	519.56	Missouri	962	337.90
Maine	360	518.73	Illinois	2,238	333.63
West Virginia	871	513.26	Tennessee	930	330.37
New Hampshire	205	495.17	Minnesota	629	322.40
South Carolina	400	482.51	Wisconsin	799	298.47
Vermont	214	478.75	Wyoming	23	287.50
Georgia	1,619	475.76	Montana	6	22.56
Idaho	78	475.61	Oregon	21	19.63
Texas	2,044	467.31			
Florida	477	465.82	Total	46,446	452.79
Oklahoma	1,057	456.39			

(*e*) *Comparison with Civil War recruits.*—A comparison of the proportion of kind of hair color found in the different States in 1919 with that found in corresponding States in 1866 will be of interest. Assuming that the light hair of Gould's statistics corresponds with the flaxen hair of the statistics of 1919, then we have for the whole territory considered in 1866 a rate of 235 per 1,000 of hair colors belonging to the category of light, and, in 1919, 50 per 1,000 belonging to the category of light. On the face of it, this is an enormous reduction in the proportion of flaxen hair as compared with the light hair of half a century earlier. Fifty years ago the State with the largest percentage of light hair color was Kentucky, with 381 per 1,000; in 1919 the proportion of flaxen hair in Kentucky was 21 per 1,000, and of light brown hair 192 per 1,000, or together 213 per 1,000; in any case an enormous decrease of light hair in the population. This is probably due to the fact that the recruits from Kentucky during the Civil War were drawn especially from the mountain regions and contained few or no colored men, whereas in the World War they were uniformly from the whole State and included colored as well as white.

In the series of light hair in the Civil War we find West Virginia standing second, with 311 per 1,000; in 1919 there are 52 per 1,000 with flaxen hair and 225 per 1,000 with light brown hair; a total of 277 with light hair. This is a marked reduction in the proportion of light hair in this State, due no doubt to the inclusion of many colored men in the present series. Next in the Civil War series of light hair stands Indiana, with a ratio of 294 per 1,000. In the World War this State had a ratio for flaxen hair of 60 per 1,000 and of light-brown hair of 252 per 1,000, or together 312 per 1,000. This indicates no great change in the proportion of light hair in this State. In 1866, of men from Missouri, 291 per 1,000 had light hair; in 1919, 34 per 1,000 of the men from this State were stated to have flaxen hair and 227 per 1,000 light-brown hair; a total of 261 per 1,000, a slight decrease during 50 years. In 1866 the ratio for light-brown hair for Illinois was 286; in 1919 for flaxen hair it is 49, for light-brown hair 298; a total of 347, apparently an increase in the proportion of blonds in this State, probably due to the immigration of Scandinavians and Germans. Similarly the proportion of blonds has probably risen in Ohio and Wisconsin, remained stationary or fallen in Massachusetts, and increased somewhat in Pennsylvania from 204 to 262. The apparent increases of the lighter colors of hair in Vermont, New York, Connecticut, and Maine may very likely be due to the fact that the categories were not quantitatively distinguished either for Civil War recruits or World War troops, and hence the limits were not drawn uniformly.

In regard to the distribution of light hair color by races, we find that of World War troops there is a larger proportion of flaxen hair in the Polish than in any of the other eight races considered. It is to be noted that Scandinavians were not included in the study, as there were relatively few of them. The proportion of flaxen and light-brown hair together in 1919 is 374 per 1,000 in Germans; for light hair color in 1866 it was 290. In the Civil War soldiers, as in those of the World War, the proportion of light hair stands highest in Germans, if we omit Scandinavians and Polish from consideration. Third in position of World War troops in proportion of light hair are the English, and this position is the same that they occupied in the Civil War. Next in both Civil War and World War series stand the Scotch, then come the Irish and French. The Hebrews come next in the World War series; last come the Italians, with 6 per 1,000 flaxen hair, or 65 per 1,000 of flaxen and light-brown hair together. This proportion agrees pretty well with the proportion of Spanish and Portuguese recruits in the Civil War of 42 per 1,000.

TABLE 136.—*Comparative frequency distribution of hair color in each of 8 races, demobilization, 1919.*

SECTION A: ABSOLUTE NUMBERS.

Race.	Total.	Flaxen.	Light brown.	Medium brown.	Dark brown.	Clear red.	Red and black.
English	4,196	231	989	959	1,826	58	133
Scotch	2,045	108	468	459	863	41	106
Irish	6,137	232	1,157	1,140	3,138	156	314
German	7,067	484	2,163	1,467	2,711	48	194
French	1,434	39	199	237	885	11	63
Italian	3,488	21	206	278	2,636	6	341
Polish	2,402	182	801	470	863	17	69
Hebrew	1,686	27	186	188	1,131	15	139
Number measured	28,455	1,324	6,169	5,198	14,053	352	1,359
Not measured	215						
Total	28,670						

SECTION B: HAIR-COLOR DISTRIBUTION PER 1,000 OF EACH RACE.

Race.	Total.	Flaxen.	Light brown.	Medium brown.	Dark brown.	Clear red.	Red and black.	Total.
English	147.46	55.05	235.70	228.55	435.20	13.82	31.69	1,000
Scotch	71.87	52.81	228.85	224.44	422.00	20.05	51.83	1,000
Irish	215.67	37.80	188.54	185.77	511.32	25.42	51.17	1,000
German	248.36	68.49	306.08	207.60	383.61	6.79	27.45	1,000
French	50.40	27.19	138.77	165.27	617.19	7.67	43.93	1,000
Italian	122.58	6.02	59.06	79.70	755.73	1.72	97.76	1,000
Polish	84.41	75.77	333.47	195.67	359.28	7.08	28.72	1,000
Hebrew	59.25	16.01	110.31	111.51	670.81	8.90	82.44	1,000

Clear red hair is perhaps the most satisfactory color to serve as a basis for comparison between Civil War and World War troops. In the Civil War the rate for Scotland was higher than that for any other country, namely, 27 per 1,000, and Ireland came next with 23 per 1,000. In the World War series Ireland stands first with 25 per 1,000, and the Scotch second with 20 per 1,000. It is probable that the more recent Scotch immigrants have been drawn from a different part of Scotland than the earlier one. Third in the Civil War series stands England with a rate of 22, whereas for England in the World War series the rate is 14. Next in the Civil War series comes Germany with a rate of 19, but the rate is 6.8 in the case of World War troops, and this rate is exceeded by Hebrews, 9 per 1,000; French, 8 per 1,000, and by the Polish, 7 per 1,000. The rate for the French, Belgians, and Swiss together in the Civil War was 16 per 1,000. The smallest ratio of red hair is found in troops of Italian origin, namely, 1.7 per 1,000. In the case of Civil War troops the smallest ratio was in the Spanish and Portuguese, 3 per 1,000. Red hair seems to be getting rarer in all European stocks.

(*f*) *By Quartermaster distribution zones.*—Table 137 gives the distribution of the various hair colors in the Quartermaster's distribution zones. The rate for flaxen hair reaches a maximum in zone 11, including the Dakotas, Nebraska, and the three central Mountain States, 75 per 1,000. The next highest rate is in zone 7, surrounding the Great Lakes; next in zone 1, the New England States except Connecticut; next zone 13, the Pacific and northern Rocky Mountain States. The zone with the smallest proportion of flaxen hair, 12 per cent, is zone 5, including the Southeastern States. Just above in order stand zone 9, zone 4, and zone 12, including Arizona and New Mexico, 37 per 1,000. Of clear red hair the largest proportion is found in zone 13, Pacific and northern Rocky Mountain States, 17 per 1,000. Next is zone 10, 16 per 1,000; then comes zone 11, the Dakotas and central Rocky Mountain States, 14 per 1,000; and zone 2, the Middle Atlantic States, also 14 per 1,000. The smallest rate is found in zone 12, from which no case is recorded; and the next is zone 9, the States of Louisiana and Mississippi.

(*g*) *Hair color in eight European races.*—Table 136–B gives the relative proportion of different classes of hair pigmentation for each of the eight races. This table shows that among the Irish the clear red hair forms a larger proportion of the total than in the case of any other race. Similarly, flaxen hair forms a larger proportion of all hair colors among the Polish than it does among the Germans or any other of the eight races. This table shows strikingly the small amounts of flaxen, light brown, and medium brown hair color among the Italians and the large percentage of dark browns among them.

The table brings out strongly that the Poles in America, probably largely from a restricted area of Polish territory in Europe, are more nearly Nordic in their blue eyes and light hair than are the English, who have suffered so large an admixture of other races. As far as hair color goes, Poles are blonder than the Scotch or the English. It is noteworthy also that among the Scotch, Irish, and Polish, the proportion of clear blue eyes far exceeds the total of flaxen and light brown and clear red hair together. In fact, among the Irish the clear blue eye constitutes 534 per 1,000, whereas the sum of flaxen, light brown, and medium brown and clear red hair is 438 per 1,000. In so far this accords with a common view that among the Irish the dark brown or black hair is often combined with the clear blue eyes.

TABLE 137.—*Comparative frequency distribution of hair color by Q. M. C. distribution zones, based on nativity of demobilized troops.*

SECTION A: ABSOLUTE NUMBERS.

Hair color.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
Flaxen	4,742	389	1,093	123	140	1,945	393	73	199	150	13	224
Light brown	22,636	1,128	4,979	565	1,715	9,206	1,862	681	829	528	53	1,090
Medium brown	21,600	1,233	3,428	513	4,112	7,533	2,122	618	736	413	51	841
Dark brown	46,812	3,502	13,099	1,919	5,408	12,081	3,582	2,519	2,044	800	216	1,642
Clear red	1,286	87	339	40	139	384	107	27	68	28	....	67
Red and black	4,536	230	1,270	191	174	1,073	639	240	479	78	23	139
Number measured	101,612	6,569	24,208	3,351	11,688	32,222	8,705	4,158	4,355	1,997	356	4,003
Not measured	721	....	....	....	....	....	....	....	....	....	....	....
Total	102,333	....	....	....	....	....	....	....	....	....	....	....

SECTION B: HAIR-COLOR DISTRIBUTION PER 1,000 OF EACH ZONE.

Hair color.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
Flaxen	46.67	59.22	45.15	36.71	11.98	60.36	45.15	17.56	45.69	75.11	36.52	55.96
Light brown	222.77	171.72	205.68	168.61	146.73	285.71	213.90	163.78	190.36	264.40	148.88	272.30
Medium brown	212.57	187.70	141.61	153.09	351.81	233.78	243.77	148.63	169.00	206.81	143.26	210.09
Dark brown	460.69	533.11	541.10	572.66	462.70	374.93	411.49	605.82	469.35	400.60	606.74	410.19
Clear red	12.66	13.24	14.00	11.94	11.89	11.92	12.29	6.49	15.61	14.02	....	16.74
Red and black	44.64	35.01	52.46	57.00	14.89	33.30	73.41	57.72	109.99	39.06	64.61	34.72
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

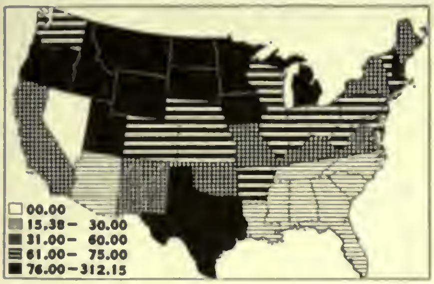
DISTRIBUTION, HAIR, AND EYE COLOR DEM.—1919

STATES OF NATIVITY

HAIR

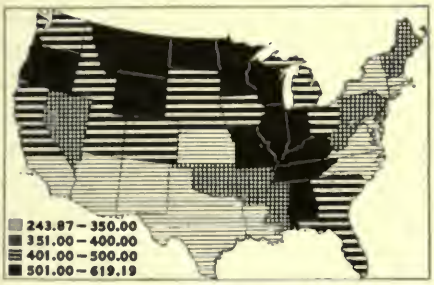
1

FLAXEN AND RED



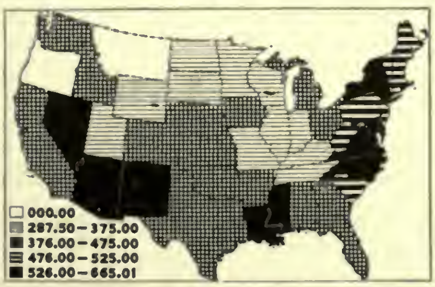
3

LIGHT AND MEDIUM BROWN



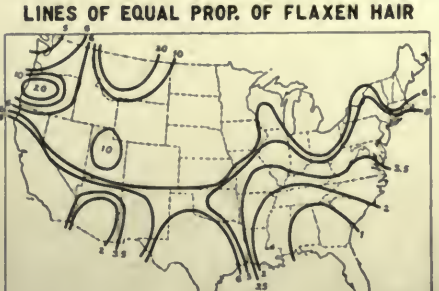
5

DARK BROWN



7

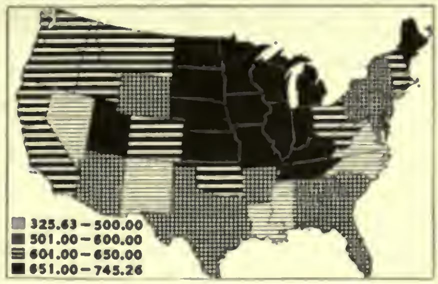
LINES OF EQUAL PROP. OF FLAXEN HAIR



EYES

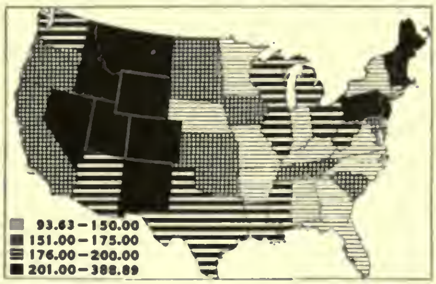
2

CLEAR BLUE AND BLUE WITH BROWN SPOTS



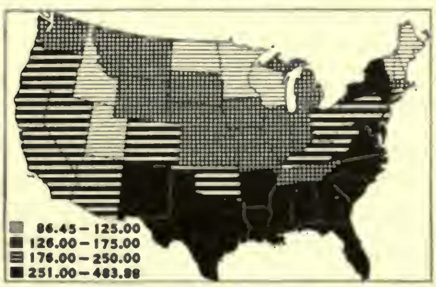
4

LIGHT BROWN



6

DARK BROWN



8

LINES OF EQUAL PROP. OF CLEAR BLUE EYES

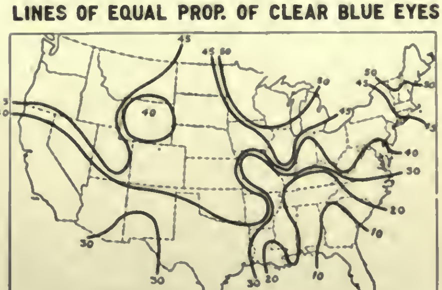


PLATE XXX.

SECTION II.

HEIGHT, WEIGHT, AND CHEST CIRCUMFERENCE OF RECRUITS IN RELATION TO VARIOUS DISEASES AND DEFECTS.

I. INTRODUCTORY.

The following study is based upon the physical measurements of defective men from among approximately 2,000,000 men sent to mobilization camps in the United States in connection with the selective drafts of 1917 and 1918. Tabulations have been made separately for those in the first and second million men. The first million include men sent to mobilization camps between September, 1917, and the 1st of May, 1918; the second million of the 1,666,867 who were entrained for mobilization camps between the early part of May, 1918, and November 11, 1918. The second million includes a large (though unknown) proportion of men of the second registration, or of those who had reached the age of 21 subsequent to the first registration.

In studying the results, it must be noted, first of all, that the men measured had already been examined and selected by local boards. They represent the cases accepted by local boards. Presumably all who were rejected on physical grounds fall outside certain limits of acceptance designated in the physical examination standards. On the other hand, some men, whose physical dimensions lay outside the ordinary limits of acceptance, nevertheless got to camp under various broad interpretations of the standards, and a few were sent through accident.

II. STANDARDS OF MEASUREMENTS OF DRAFTED MEN.

(*a*) *Stature.*—The changing military standards for stature during the period of the draft have been referred to in detail in an earlier chapter. Always men under 60 inches and over 78 inches were to be rejected; but apparently some were sent to camp who were outside the regulation limits, because of exceptional qualifications in other respects.

The mean stature of the first million recruits, including defectives, sent to camp, is 67.49; the standard deviation, or measure of variability, 2.71 inches. The mean is not that of adult males in general, but that of a selected lot, from whom the shortest and tallest has been eliminated. Not until the measurement of the men rejected by the local boards shall have been tabulated will we be able to estimate the true mean stature of young adult American males.

(*b*) *Weight.*—From the beginning of the selective draft stress was laid upon securing for the Army men of proper weight. Experience indicates that men who are below a certain standard of weight are unable, ordinarily, to carry a heavy pack, and that those over a certain weight are too unwieldy for rapid movement.

The standards of the War Department in the years before the draft provided a minimum weight for all branches of the service of 128 pounds. But it was provided that men 64 inches in height might be accepted who weighed only 120 pounds, if otherwise sound and apparently healthy. It was necessary to obtain special permission from The Adjutant General to enlist a man who weighed less than 120 pounds. The maximum weight was placed at 190 pounds for Infantry, Engineers, Coast Artillery, and Field Artillery, and 165 pounds for Cavalry. At the beginning of the draft local boards were instructed that the minimum weight was 118 pounds and the maximum 211 pounds. But it was provided that, "when the applicant is active, has firm muscles, and is evidently vigorous and healthy" a weight of 8 pounds below the minimum would be accepted for men 61 to 64 inches; of 24 pounds below the minimum for men 73 inches and upward, and for intermediates permissible variations below the standard were given. The regulations further state: "Variations in weight above the standard would not disqualify unless sufficient to constitute obesity."

III. PHYSICAL-EXAMINATION STANDARDS.

(*a*) *Stature and weight.*—The physical-examination standards for local boards of November, 1917, gave a table (Table 138) showing the relations between standard accepted measurements and the permissible variations from the standard.

TABLE 138.—*Standards of height, weight, chest circumference, and mobility of chest, adopted for draft recruits, United States Army, 1917.*[a]

Column A. Standard accepted measurements.				The following variations from the standard shown in Column A are permissible when the applicant is *active, has firm muscles, and is evidently vigorous and healthy.*			
Stature.	Weight.	Chest measurement: Expiration	mobility.	Stature.	Weight.	Chest measurement: Expiration	mobility.
Inches.	*Pounds.*	*Inches.*	*Inches.*	*Inches.*	*Pounds.*	*Inches.*	*Inches.*
61	118	31	2	61	110	30	2
62	120	31	2	62	110	30	2
63	124	31	2	63	112	30	2
64	128	32	2	64	113	30	2
65	130	32	2	65	114	30	2
66	132	32½	2	66	116	30¼	2
67	134	33	2	67	118	30½	2
68	141	33¼	2¼	68	121	30¾	2
69	148	33½	2½	69	124	31	2
70	155	34	2½	70	128	31¼	2
71	162	34¼	2½	71	133	31¾	2
72	169	34¾	3	72	138	32¼	2¼
73	176	35¼	3	73	143	32¾	2½
74	183	36¼	3	74	148	33½	2½
75	190	36¾	3¼	75	155	34¼	2¾
76	197	37¼	3½	76	161	34¾	2¾
77	204	37½	3¾	77	168	35¼	3
78	211	38¼	4	78	175	35¾	3

[a] Selective Service Regulations, Nov. 8, 1917.

It was moreover specified:

Variations in weight above the standard are not disqualifying, unless sufficient to constitute such well-marked obesity as to interfere permanently with normal physical activity.

The standards for local boards of January, 1918, reduced the minimum height from 61 to 60 inches and raised the minimum weight to 120 pounds, but in other respects did not vary from the table of November, 1917. It was further specified:

Reject registrants whose weight is less than 100 pounds, unless it is plainly due to some recent illness and otherwise the registrants have no disqualifying defect.

Registrants whose weight is more than 100 pounds and less than 114 pounds and who have no other disqualifying defect are to be referred to the Medical Advisory Boards.

Registrants underweight in proportion to their height (see table), unless it is plainly due to some temporary cause, are referred to the Medical Advisory Board. When this underweight can reasonably be explained and the registrant is otherwise physically fit, *accept*.

Registrants with overweight are to be *accepted* unless the obesity interferes with normal physical activity. Refer all doubtful cases to the Medical Advisory Board.

For the Medical Advisory Boards there were issued in March, 1918, standards similar to those furnished the local boards in January. It is moreover stated:

Registrants who weigh less than 114 pounds shall not be accepted for general military service unless in the opinion of the Medical Advisory Board it is a remediable defect.

Registrants who weigh more than 120 pounds, but less than the prescribed weight for the height indicated in the table of measurements of height and weight, may be accepted when in the opinion of the Advisory Board the defect is remediable by camp life. If, however, in the opinion of the Advisory Board the defect is not remediable these registrants, if otherwise physically and mentally fit, shall be accepted for special and limited military service. (Group C.)

From the foregoing extracts from the standards we see that though the weights for each height and the minimum and maximum weights are clearly stated, yet examining boards were permitted considerable latitude in rejecting men whose weight lay outside the standards, and there is internal evidence that boards exercised the discretion thus given to them. For example, in Table I there are recorded over 10,000 men who were under the minimum weight of 114 pounds, and nearly 4,700 men who weighed 200 pounds, which was too great a weight for men even of the maximum stature of 78 inches, of whom there were, indeed, only about 550.

(*b*) *Chest circumference.*—The Army Regulations require that the circumference of the chest of recruits shall be measured at the time of the physical examination. Ordinarily the circumference of the chest is measured while fully deflated and then when fully expanded. The difference between the two measurements is known as mobility.

The local boards were directed in the first of the physical examination standards (1917) that "all chest measurements are to be taken on a level just above the nipple." Standard chest measurements at expiration for each inch of stature are given in Table 138. The same standards were continued throughout the year. It was prescribed, "All chest measurements to be taken on a level just above the nipple and with the tape horizontal." In January, 1918, there was added to the table as a standard measurement, "Height, 60 inches; weight, 120 pounds; chest at expiration, 31 inches; mobility, 2 inches."

It was further specified: "Registrants whose chest measurements do not come within the limits of the table and who have no disqualifying defect are to be referred to the Medical Advisory Board. Examiners were moreover warned that "Measurements should be taken with the greatest care."

Instructions to the Medical Advisory Boards of February, 1918, repeated these regulations for the local boards and added:

A registrant who appears not to be able to expand the chest 2½ to 3 inches, respectively, as per table, should be examined especially to ascertain if the failure of adequate chest expansion is due

to ignorance and lack of practice. If in the opinion of the Advisory Board the lack of the prescribed expansion is remediable by camp life and the registrant is otherwise physically and mentally fit he shall be accepted. If, however, in the opinion of the Advisory Board the defect of expansion is not remediable and the registrant is otherwise physically and mentally fit he shall be accepted for special and limited military service. (Group C.)

The growing precision and emphasis in physical examination requirements of later date indicate a realization by the board responsible for the standards that the chest circumference was not always taken adequately by local boards. During the earlier period under consideration when examination at camps were made by regimental medical officers, the instructions given to them was that *weight, height, and chest measurements will be copied from data on physical forms (No. 14 P. M. G. O.) furnished by the local boards, except in those cases referred to the specialist for retaking of weight, height, and chest measurements*, in which case the specialist will note his findings in the proper place on record card. Subsequently, however, when the examinations were conducted at each camp by a central examining board, it was the custom for each such board to retake and record the weight, height, and chest measurements.

In the tables referred to in the following sections there are considered only the measurements of chest at expiration, which is certainly somewhat less than the chest circumference at rest. The measurement of the chest circumference at rest was not taken by the medical examiners. The chest circumference at expiration is taken as most nearly representing the circumference of the chest at rest. It may be here mentioned that the average chest circumference found at demobilization, when the chest circumference was taken while at rest, is 34.96 for whites and 34.63 for colored, or probably not far from 34.9 for the whole population. The chest circumference at expiration for the 873,000 men examined by camp boards is given as 33.22; part of the excess of the men at demobilization is to be attributed to exercise and Army training which are adapted to produce an enlargement of the chest. About three-fourths of an inch, however, of the greater size at demobilization is due to the fact that, as stated, the chest was measured at demobilization in a quiescent condition, whereas in the case of recruits it was measured with the lungs deflated as far as possible. As stated, for the entire 873,000 men measured in the early part of the draft, the chest circumference is found on the average to be 33.22 inches at expiration. The standard deviation of this chest circumference is 2.01 inches.

IV. THE DIMENSIONS OF MEN WITH SPECIFIC DEFECTS AND DISEASES.

We now pass to a detailed consideration of the three physical measurements in men with the different classes of defects and diseases and the interpretation of the peculiarities that these dimensions show.

1. PULMONARY TUBERCULOSIS.

There are included in our statistics 10,701 men found at mobilization camps to have pulmonary tuberculosis.

(*a*) *Stature.*—The average stature of such men is 68.07 inches, which is 0.58 inch greater than the average height of the first million men as shown at the bottom of Table I. The standard deviation in stature of these men is 2.74, which is 0.03 more than the standard deviation of all statures as given in

Table I. That is to say, in respect to stature men with pulmonary tuberculosis are not a random sample of the population, but on the average are selected from the taller men. The significance of tall stature of men with pulmonary tuberculosis is probably not that the organism induces extra growth, but that the tall races of men are less resistant to the *Bacillus tuberculosis* than are the shorter races of stockier build. That the taller races are more susceptible to tuberculosis of the lungs is indicated by a study of Dublin and Baker.[24] They show that the rate of mortality from pulmonary tuberculosis is: Among persons born in England, Scotland, and Wales and living in Pennsylvania, 150 per 100,000; living in New York State, 215 per 100,000. Of persons born in Ireland the respective rates are 343 and 589. For persons born in Italy the corresponding rates are 82 and 112, and for persons born in Russia (largely Russian Jews) 107 and 115. This observation then supports the view that pulmonary tuberculosis affects particularly taller races.

Of the 6,048 men found with pulmonary tuberculosis in the second million examined at mobilization camps, the mean stature is 68.12, which is even taller than in the case of the first million. This second group includes more young men, of the age of 21. The standard deviation of stature of men with pulmonary tuberculosis among men of the second million is 2.76 inches, which is 0.06 inch larger than for the first million men.

The distribution of statures in the population of men found with pulmonary tuberculosis is shown in Plate XXXI. This shows at a glance that the modal stature is over one-half an inch greater in this group than in the population at large, and that, on the whole, men with tuberculosis form a group characterized by tall stature.

(*b*) *Weight.*—Of the 10,701 men found with pulmonary tuberculosis at mobilization camps among the first and second million, the average weight is 130.44 pounds. This is about 11 pounds below the average. This deficiency in weight is the more remarkable inasmuch as the men with tuberculosis are an exceptionally tall lot of men, over half an inch taller than the average. The index of build is important in this connection. As shown in Table 189, the index of build for pulmonary tuberculosis is 28.15, the lowest index, except that of underweight cases, of any class of defects. The reduced weight of men found with pulmonary tuberculosis is in accordance with general experience, since loss of weight is one of the most marked symptoms of active tuberculosis. That the loss of mean weight is not greater is due to the fact that the more advanced cases of active pulmonary tuberculosis were eliminated by local boards and are not included in our statistical tables. It is only the residuum that was sent to camp and there diagnosed as having pulmonary tuberculosis, which is considered in our tables.

The standard deviation of the mean weight is 14.95 pounds for the first million, 14.36 for the second million, and 14.74 for the two combined. This is about 2.75 to 3 pounds below the standard deviation for the whole population. This small standard deviation is partly in consequence of the reduced mean weight, but largely because the men with pulmonary tuberculosis practically all show loss of weight, and relatively few of them show a deviation in the positive direction. They are mostly men of low mean weight, and show comparatively little variation therefrom.

The relation between the distribution of weights of the population of men with pulmonary tuberculosis and the population of recruits in general is graphically shown in Plate XXXIV. This curve brings out strikingly the great weight deficiency of men with pulmonary tuberculosis, and this is the more striking in view of the fact that they have a stature that is above the average. The modal weight is about 10 pounds below the average, and there is almost an entire absence of the greater weights, above 185 pounds.

(*c*) *Chest circumference.*—In the 10,649 men found having pulmonary tuberculosis at mobilization camps the average chest circumference is 32.09 inches, or 1.13 inch less than the average for the whole population examined. For the first million men the average chest circumference is 32.33 inches; for the second million 31.90 inches. That for the second million is nearly half an inch less than that for the first million. This is a somewhat remarkable result in view of the fact that the men of the second million are taller than those of the first and indicates that the men with tuberculosis in the second million were much slenderer than those of the first million. These facts show that, as ordinary observation confirms, persons with pulmonary tuberculosis tend to have relatively small chest circumference despite their great stature. The low variability suggests that the small chest circumference is not necessarily the consequence of tuberculosis, for if it were, we should have persons with large chest circumference who were beginning to show signs of pulmonary tuberculosis, and those with small chest circumference in whom the disease had progressed far. Consequently were the small chest circumference merely caused by pulmonary tuberculosis, variable chest circumference would be expected. On the other hand, the low variability suggests that the small chest circumference is a constitutional trait; that is, those in whom the chest developed inadequately are apt to acquire active symptoms of tuberculosis, or, to put it in another way, persons with a tuberculous diathesis are characterized from youth on by small development of the chest, as well as by tall stature.

The relation between the distribution of chest circumference in the population found with pulmonary tuberculosis and the population of recruits in general is shown graphically in Plate XXXVII. It appears that the chest girth of the population with tuberculosis is far below that of the population of recruits in general.

(*d*) *Robustness.*—The index of build, as determined by using the second power of the height as a divisor, for the group of men with pulmonary tuberculosis is 28.15, which is 2.82 units below the average of the United States. This, as stated above, is the smallest index of build of any of the groups of defects, except that of underweight.

Pignet's [20] index of robustness for men with pulmonary tuberculosis is 30.27. This brings the group into Pignet's class of very weak constitution. For each inch of the average height there are 1.92 pounds of weight as compared with the normal 2.097, and 0.472 inch of chest measure (expiration) as compared with the normal 0.492. In summary, the average tuberculous subject is tall, narrow chested. and underweight.

TABLE 139.—*Correlation between height and weight in recruits with tuberculosis (pulmonary), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																							
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under	9		1						4			1	1		1		1								
59	14				1		1	2	3	1	2	3							1						
60	35	1	2	2	2	5	4	3	4	5	2	1	2			1	1								
61	64			3	4	7	9	14	11	3	3	5	3	1	1										
62	122		2	7	13	19	20	15	15	9	8	5	3	3			2							1	
63	240			4	17	35	43	39	38	19	26	6	4	3		1		3						2	
64	505		2	11	38	50	74	96	84	57	38	25	14	2	5	3	1	3	1					1	
65	783			7	26	68	123	141	134	106	68	51	19	11	11	4	3	7	2	2					
66	1,198	1	1	7	27	74	128	221	215	184	123	102	45	34	19	7	6	3			1				
67	1,444	1		2	19	53	121	232	255	246	209	113	81	42	27	20	8	9	4	1			1		
68	1,584		1		11	33	84	196	263	248	270	152	132	83	44	26	17	13	4	3	2	1		1	
69	1,496			1	4	14	66	130	187	252	235	213	138	116	59	34	20	17	4	4			1	1	
70	1,242			1	4	12	24	51	133	191	205	192	166	88	75	39	31	11	9	4	2	3		1	
71	888					2	18	31	80	101	146	122	123	102	72	32	27	16	6	3	3	4			
72	568				1		2	11	21	49	77	85	91	92	54	28	15	21	8	7	2		2	1	1
73	283			1				1	11	14	27	40	54	44	28	21	19	16	3	1	1	1	1		
74	135						1	1	3	7	16	17	24	13	22	11	7	5	3	3	2				
75	53							1		4	5	6	8	4	11	5	4	5							
76	23									2		2	3	3	4	2	2	3	1	1					
77	5												1		1		2								1
78	8								1				1	1	1	1	1	1	1						
79	1											1													
80 and over	1							1																	
Total	10,701	3	9	46	167	372	718	1,186	1,462	1,498	1,460	1,142	913	642	435	235	167	133	47	29	13	9	5	8	2

P_1—
Number of cases: 4,653.
Height: Mean, 68.01 inches; standard deviation, 2.70±0.02 inches.
Weight: Mean, 131.77 pounds; standard deviation, 14.95±0.11 pounds.
Correlation: 0.4551±0.0078.

P_2—
Number of cases: 6,048.
Height: Mean, 68.12 inches; standard deviation, 2.76±0.02 inches.
Weight: Mean, 129.42 pounds; standard deviation, 14.36±0.09 pounds.
Correlation: 0.5533±0.0060.

P_1 and P_2—
Number of cases: 10,701.
Height: Mean, 68.07 inches; standard deviation, 2.74±0.01 inches.
Weight: Mean, 130.44 pounds; standard deviation, 14.74±0.07 pounds.
Correlation: 0.4754±0.0050.

TABLE 140.—*Correlation between height and chest circumference (expiration) in recruits with tuberculosis (pulmonary), first* (P_1) *and second* (P_2) *million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	9	......	1	......	3	2	1	......	1	......	1	......	......	......	......	......	......
59	12	......	......	3	4	3	2	......	......	......	......	......	......	......	......	......	......
60	34	3	6	4	7	5	5	2	2	......	......	......	......	......	......	......	......
61	64	2	7	11	17	11	11	3	1	1	......	......	......	......	......	......	......
62	121	6	12	29	25	18	21	8	1	......	......	......	......	1	......	......	......
63	236	2	32	41	50	41	33	18	13	4	1	......	1	......	......	......	......
64	502	20	60	89	102	104	61	38	19	5	1	2	1	......	......	......	......
65	782	14	74	158	179	151	107	57	24	11	4	1	......	1	......	......	1
66	1,192	22	92	210	250	223	212	111	44	20	6	1	1	......	......	......	......
67	1,435	13	100	211	318	317	247	123	65	32	6	3	......	......	......	......	......
68	1,579	14	99	206	330	328	274	171	94	41	14	3	5	......	......	......	......
69	1,489	17	64	176	275	351	285	178	89	30	14	7	2	......	......	......	1
70	1,237	7	43	117	219	290	248	172	90	36	9	3	2	......	1	......	......
71	884	6	26	70	122	200	185	141	80	42	11	......	1	......	......	......	......
72	566	......	4	32	68	135	127	114	44	30	11	1	......	......	......	......	......
73	282	......	5	15	30	62	56	54	28	27	3	1	1	......	......	......	......
74	135	......	1	12	16	35	30	18	14	6	3	......	......	......	......	......	......
75	53	......	2	3	8	11	6	14	4	2	3	......	......	......	......	......	......
76	23	......	......	......	2	3	6	8	2	1	1	......	......	......	......	......	......
77	5	......	......	......	......	2	......	......	2	1	......	......	......	......	......	......	......
78	8	......	......	1	1	......	1	3	......	1	1	......	......	......	......	......	......
79	1	......	......	......	......	1	......	......	......	......	......	......	......	......	......	......	......
Total	10,649	126	628	1,388	2,026	2,293	1,918	1,233	617	290	89	22	14	2	1	......	2

P_1—
Number of cases: 4,627.
Height: Mean, 68.02 inches; standard deviation, 2.69±0.02 inches.
Chest circumference (expiration): Mean, 32.33 inches; standard deviation, 1.87±0.01 inches.
Correlation: 0.2391±0.0093.

P_2—
Number of cases: 6,022.
Height: Mean, 68.12 inches; standard deviation, 2.76±0.02 inches.
Chest circumference (expiration): Mean, 31.90 inches; standard deviation, 1.80±0.01 inches.
Correlation: 0.2499±0.0081.

P_1 and P_2—
Number of cases: 10,649.
Height: Mean, 68.07 inches; standard deviation, 2.73±0.01 inches.
Chest circumference (expiration): Mean, 32.09 inches; standard deviation, 1.85±0.01 inches.
Correlation: 0.2412±0.0062.

2. SIMPLE GOITER.

The dimensions of men who show simple goiter are of very great interest, because goiter is a disease of the thyroid gland and the secretions of this gland are believed to have important relations to the growth of the body. It is commonly accepted that persons with a thyroid that is especially active during early years of development tend to a large stature, whereas those with less active thyroid secretions remain relatively short. The tall groups are relatively slender, the short groups relatively stout. It is to be noted, however, that goiter usually first makes its appearance after adolescence, when the form of the body is already established, and hence its influence is less than though the disturbance of the thyroid gland occurred at an earlier age.

(*a*) *Stature.*—The mean stature of 7,099 men found at mobilization camps among the first and second million to have goiter is 67.94 inches, which is 0.45 inch greater than the average stature of the first million men, as indicated in Table I. Thus the men with hypertrophied thyroid gland show themselves to be nearly half an inch taller than the average. Since enlargement of the thyroid gland, in its early stage at least, may possibly be accompanied by an excessive secretion, the tall stature of the goitrous cases may be in part due to this excessive secretion. On the other hand, it must be recognized that the persons affected with goiter belong especially to the taller races in the United States. As pointed out in another publication,[9] goiter is found especially in the extreme northwest, in Washington and Oregon, and in the region of the Great Lakes. The extreme northwest is certainly characterized by tall stature, and in the States of Wisconsin and Minnesota, both States with a high proportion of goiter, there are many representatives of the Scandinavians and Germans, who belong to the taller races. So it is impossible to ascribe the exceptional height of men found with goiter exclusively, if at all, to the hypersecretion of the thyroid gland. The standard deviation in stature of the goitrous cases is 2.58, which is slightly less than the standard deviation of all statures (2.71) shown in Table I. This restricted variability of stature indicates that the goitrous population is selected for high stature more than the population as a whole, and this is because the goitrous localities contain a rather homogeneous population of tall men as compared with the population of the United States as a whole. Indeed a comparison of the distribution of statures in men with simple goiter, as shown in Table 141, with the distribution in Table I (which shows the distribution of statures for the unselected population), reveals a marked deficiency in the lower statures and a corresponding excess in the tall statures. The mean height of men found with goiter in the second million is practically the same as the first million—namely, 67.95—so that there was no important change in the stature of the men selected for this disease in the two periods of examination.

The relation between the distribution of height of men with simple goiter and its distribution in the population at large is shown in Plate XXXI. It appears at a glance that the men with goiter are markedly taller than the population at large. This is probably because such tall men have come to inhabit the goitrous districts, or that the taller races, such as Scandinavians, are more often affected.

(*b*) *Weight.*—Of the 7,099 men in whom simple goiter was found at mobilization camps among the first and second million recruits, the average weight is 142.36 pounds. The average weight is only 0.82 pound above the average for the whole population, which is about six times the probable error. The index of build is 30.84, which is slightly less than that of the first million men as a whole. The population with goiter is a tall and slender one. The slight deficiency in build is, however, probably no greater than the deficiency in build that characterizes tall men in general.

The standard deviation of the mean weight is 16.50 pounds for the first and second million men. This standard deviation is 0.92 pound less than the standard deviation of the whole population of the first million which is not a very significant difference. The weight and standard deviation for the second million are not significantly different from those of the first million.

The relation between the distribution of weights in the population of men with simple goiter and that of recruits in general is shown in Plate XXXIV. The graph shows that the population with simple goiter is a heavy population as compared with the population of recruits in general. This is, however, associated with the great stature of the population with simple goiter, the significance of which has been referred to in the preceding paragraph.

(*c*) *Chest circumference.*—In the 7,085 men found with goiter among the the first and second million the average chest circumference is 33.11 inches, or 0.11 below the average of the whole population, as shown in Table II. The standard deviation of this dimension is 1.95, or about 0.06 inch below the average of the whole population. The average chest circumference for this group in the second million men is 33.13, which is slightly greater than for both million men, and is slightly less for the first million, 33.04.

The relation between the distribution of chest circumference in the population found with simple goiter and that of the recruits in general is shown graphically in Plate XXXVII. There is no great difference between the two distributions, though there is a slight inferiority in chest girth in the case of the goitrous population, and this is more striking in view of the large stature of this population.

(*d*) *Robustness.*—The index of build of men with simple goiter is 30.84, or 0.23 unit below that of the average for the United States. Pignet's index of robustness for this group is 21.94, which places them in the class of medium constitution. For each inch of the average height there are 2.10 pounds of weight, as compared with the normal 2.097; and 0.487 inch of chest measurement (expiration), as compared with the normal 0.492.

TABLE 141.—*Correlation between height and weight in recruits with goiter (simple), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																											
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229
58 and under	4	1									1	1			1															
59	10				1			2	3					2			1				1									
60	9							1		2	1		4	1																
61	33					3	5	8	4	5	2	2	2	1	1															
62	70				2	5	10	13	10	13	6	6	2	1	1	1														
63	165				1	4	19	33	30	26	17	13	10	2	5	2		2	1											
64	306				1	7	25	39	57	53	38	33	17	14	10	2	3	2	2		1			2						
65	529				2	2	21	36	83	92	86	71	46	41	19	9	15		2	1	1		1						1	
66	871				1	6	23	63	85	142	126	121	107	78	49	27	18	12	4	5	1		1	2						
67	1,059				2	4	14	36	84	136	154	161	149	99	89	42	30	26	14	7	6	3	2	1						
68	1,143				2		8	21	67	107	151	160	174	156	106	77	43	24	20	12	6	3	5	1						
69	1,021						7	15	47	74	87	124	167	139	118	107	52	28	20	16	8	2	7	1	1		1			
70	801							4	15	24	64	91	118	105	108	80	65	49	34	19	9	9	3	1	2					1
71	515								3	7	28	43	67	90	69	49	55	37	33	10	7	4	6	4	2	1				
72	305									5	10	20	31	49	41	42	32	33	13	10	7	5	4	4	1					
73	143						1					10	7	13	23	15	19	16	15	13	5	2	2			2				
74	61								1			1	3	7	5	10	12	7	3	2	4	1	4		1					
75	26												1	1	1	2	2	4	2	1	4	5	2		1					
76	14											1		1				3		5	2	2								
77	7																	2	2	1	1	1								
78	6											1	1	1					1	1		1								
79	1																1													
Total	7,099	1			12	31	133	271	489	684	771	859	906	801	646	465	348	245	166	103	63	38	37	16	8	3	1		1	1

P_1—
Number of cases: 1,813.
Height: Mean, 67.94 inches; standard deviation, 2.54±0.03 inches.
Weight: Mean, 142.39 pounds; standard deviation, 16.28±0.18 pounds.
Correlation: 0.4861±0.0121.

P_2—
Number of cases: 5,286.
Height: Mean, 67.95 inches; standard deviation, 2.59±0.02 inches.
Weight: Mean, 142.35 pounds; standard deviation, 16.57±0.11 pounds.
Correlation: 0.5260±0.0067.

P_1 and P_2—
Number of cases: 7,099.
Height: Mean, 67.94 inches; standard deviation, 2.58±0.01 inches.
Weight: Mean.142.36 pounds; standard deviation, 16.50±0.09 pounds.
Correlation: 0.5160±0.0059.

TABLE 142.—*Correlation between height and chest circumference (expiration) in recruits with goiter (simple), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Chest, in inches.															
	Total.	28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
58 and under	4					1	1	1			1					
59	10			3	1	2		1	1	1	1					
60	9				2	3	1	3								
61	33			9	6	7	3	8								
62	70		4	10	16	8	15	9	7		1					
63	164	2	7	22	31	40	32	20	5	3	1	1				
64	307	5	14	40	62	59	50	33	29	9	3	3				
65	527	2	6	54	85	125	89	90	44	19	4	5	2			2
66	871	5	21	79	153	182	168	126	83	35	9	6	4			
67	1,057	5	18	67	143	225	226	179	95	60	19	15	4	1		
68	1,138	1	22	56	122	222	280	211	123	67	20	9	4	1		
69	1,021	3	11	41	115	184	219	192	127	73	38	11	7			
70	800		3	33	81	111	162	158	119	69	43	10	7	3	1	
71	512	2	1	15	41	81	101	108	70	53	22	14	3	1		
72	305		2	6	15	52	57	65	61	23	13	8	3			
73	142			1	5	18	33	33	21	21	7	1	2			
74	61	1		1	2	8	9	12	16	4	7	1				
75	26			1		2	4	2	6	3	3	2	2	1		
76	14				1		2	2	1	2	6					
77	7						1	1		1	4					
78	6					3	1	1				1				
79	1									1						
Total	7,085	26	109	438	881	1,333	1,454	1,255	808	444	202	87	38	7	1	2

P_1—
Number of cases: 1,809.
Height: Mean, 67.94 inches; standard deviation 2.54±0.03 inches.
Chest circumference (expiration): Mean, 33.04 inches; standard deviation, 1.94±0.02 inches.
Correlation: 0.2182±0.0151.

P_2—
Number of cases: 5,276.
Height: Mean, 67.94 inches; standard deviation, 2.59±0.02 inches.
Chest circumference (expiration): Mean, 33.13 inches; standard deviation, 1.95±0.01 inches.
Correlation: 0.2760±0.0086.

P_1 and P_2—
Number of cases: 7,085.
Height: Mean, 67.94 inches; standard deviation, 2.58±0.01 inches.
Chest circumference (expiration): Mean, 33.11 inches; standard deviation, 1.95±0.01 inches.
Correlation: 0.2616±0.0075.

3. EXOPHTHALMIC GOITER.

Exophthalmic goiter is the name applied to a set of symptoms that accompanies hypersecretion of the thyroid gland. It is characterized by some swelling of the gland itself, which, however, may be very slight, and it induces a rapid heart beat, cardiac hyperirritability, and protrusion of the eyeballs in advanced cases. The geographical distribution indicates that the exogenous causes that induce it are similar to those which induce simple goiter.

(*a*) *Stature.*—The average stature of 2,620 men found in mobilization camps with exophthalmic goiter, among the first and second million men examined, is 67.97 inches, which is 0.48 inch greater than the average of the first million men, as indicated in Table I. This excess of stature is about the same as for simple goiter and is to be explained on similar grounds, especially on the ground of high racial stature found in the population subject to it or inhabiting the goitrous districts. The average stature of the 439 cases of goiter found among the first million men is 67.94 and for the 2,181 in the second million, 67.97. The standard deviation of men with exophthalmic goiter is 2.65 inches, or 0.06 inch less than the standard deviation of all the first million men measured. The low standard deviation is due to the fact that exophthalmic goiter is especially prevalent in regions occupied by tall men.

A comparison of the statures of men with exophthalmic goiter as compared with the population at large is given in Plate XXXI. This shows that on the whole the selected population with exophthalmic goiter is strikingly taller than the population at large. This is probably because tall persons either have come to inhabit the regions especially subject to exophthalmic goiter or are more subject to the disease.

(*b*) *Weight.*—Of the 2,620 men found at mobilization camps, among the first and second million, with exophthalmic goiter the mean weight was 138.82 pounds, or 2.72 pounds below the average for the first million men. This difference indicates that exophthalmic goiter has some influence upon the weight. The standard weight associated with 68 inches of stature is 142.6 pounds. The men found with exophthalmic goiter were, therefore, 3.72 pounds below the average of men of their stature. This difference indicates that patients with exophthalmic goiter are slenderer than the men of their size; and it is not improbable that this reduction in weight is due to the disease. It is noteworthy that the correlation between stature and weight is 0.516 for simple goiter, and only 0.476 for exophthalmic, indicating that stature and weight are more closely associated in simple goiter than in exophthalmic. The index of build for men of exophthalmic goiter is 30.05, as contrasted with the index of 30.84 for men of simple goiter. This leads to the conclusion that men with exophthalmic goiter are of slender build, probably in consequence of the disease itself.

The relation between the distribution of weights in the population with exophthalmic goiter and that of the population of recruits in general is shown graphically in Plate XXXIV. The mode is about 132 pounds, which is 5 pounds below the mode of recruits in general. In view of the fact that persons with exophthalmic goiter have on the whole a stature greater than the average, this suggests that a large proportion of persons afflicted with the disease are underweight because of the effects of the disease, and this would seem to be an explanation of the marked excess of persons with exophthalmic goiter having weights between 132 and 112 pounds. The irregularity in the curve at 142 pounds, or 5 pounds above the average, is possibly due to some error in recording or in tabulating. The cases are too few to give satisfactory averages.

(c) *Chest circumference.*—Of the 2,622 men found with exophthalmic goiter among the first and second million, the average chest circumference is 32.85 inches, or 0.37 inch less than the average of the whole population, as shown in Table II, and this despite the fact that the men with exophthalmic goiter are taller than the average. The relation of chest circumference to height is 0.483, which is less than 0.487 in the case of simple goiter and much less than 0.492 in the population as a whole. This again leads to the conclusion that men with exophthalmic goiter are a slender, small-chested type. The standard deviation of chest circumference is 1.98, which is a relatively small standard deviation. The small size of this standard deviation is partly due to the small absolute size of the chest, but in part is probably due to the effect of the disease itself.

The relation between the distribution of chest circumferences in the population with exophthalmic goiter and in the population of recruits in general is shown graphically in Plate XXXVII. This shows a marked deficiency in chest girth of the population with exophthalmic goiter, despite the fact that it is, on the whole, above the average in stature, and supports the conclusion that exophthalmic goiter results in malnutrition.

(d) *Robustness.*—The index of build of men with exophthalmic goiter is 30.05, which is 0.79 unit less than that of the group with simple goiter and 1.02 units less than the average for the United States. Pignet's index of robustness for this group is 24.28. This index places men with exophthalmic goiter in Pignet's group of medium constitution. For each inch of the average height there are 2.04 pounds of weight as compared with the normal 2.097, and 0.483 inch of chest as compared with the normal 0.492.

TABLE 143.—*Correlation between height and weight in recruits with exophthalmic goiter, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																										
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219
58 and under	1			1																								
59	5						1	2			1						1											
60	6						1	1		1			1	2														
61	10				1	1	1	2	2				2							1								
62	28				1	2	6	1	5	4	2	3	2	1				1										
63	71				3	2	7	19	12	11	7	5	2	1	1		1											
64	126					5	11	25	16	21	19	10	10	5		2	1						1					
65	187					3	12	24	27	27	27	29	10	13	3	4	2	3	2	1								
66	304				2	6	19	29	35	61	44	21	28	21	11	6	8	4	4		1	3		1				
67	378				4	3	9	33	51	43	61	44	47	37	14	15	7	4	1	2	1	2						
68	396					3	6	19	24	54	61	60	52	39	27	24	13	7	2	1	3	1						
69	382						2	11	29	39	50	54	57	41	27	35	17	8	4	5	2			1				
70	305						1	5	12	21	40	35	47	35	38	22	15	13	7	8	3	1			1		1	
71	210								7	6	16	20	35	29	41	13	13	10	10	4	1	3	2					
72	105								2	4	9	12	11	10	11	10	15	10	3	5	1	2						
73	63										4	6	2	11	10	7	6	5	4	1	3	1		1	1			1
74	23									1		2	2	4	1	2	2	3	4	2								
75	9											1	3		1		1		1		1		1					
76	6										1			1	1	1			1	1								
77	2														1	1												
78	2																						1	1				
79																												
80 and over	1															1												
Total	2,620			1	11	25	76	171	222	293	342	302	311	250	187	143	102	68	43	31	16	13	5	4	2		1	1

P_1—
Number of cases: 439.
Height: Mean, 67.94 inches; standard deviation, 2.53 ±0.06 inches.
Weight: Mean, 138.39 pounds; standard deviation, 16.42 ±0.16 pounds.
Correlation: 0.4876 ±0.0245.

P_2—
Number of cases: 2,181.
Height: Mean, 67.97 inches; standard deviation, 2.67±0.03 inches.
Weight: Mean, 138.39 pounds; standard deviation, 16.41 ±0.03 pounds.
Correlation: 0.4756 ±0.0012.

P_1 and P_2—
Number of cases: 2,620.
Height: Mean, 67.97 inches; standard deviation, 2.65±0.02 inches.
Weight: Mean, 138.82 pounds; standard deviation, 16.42 ±0.15 pounds.
Correlation: 0.4765 ±0.0102.

Table 144.—*Correlation between height and chest circumference (expiration) in recruits with exophthalmic goiter, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	1		1														
59	5				1	2	1	1									
60	6			1		3	1	1									
61	10			1	4	2			1	1	1						
62	28	1	1	1	6	7	5	3	3		1						
63	71		6	12	20	11	12	3	3	1	2		1				
64	126		3	17	26	31	22	14	9	1	1		1		1		
65	187	1	6	18	39	41	33	27	12	8	1	1					
66	304	1	20	38	43	66	55	38	23	13	3	2	1				1
67	378	1	11	32	75	85	66	42	36	20	5	3			2		
68	397	1	8	30	57	85	84	73	33	15	4	6	1				
69	382	1	6	26	42	82	90	60	37	22	11	2	3				
70	306		7	20	33	48	64	51	45	25	9	2	1	1			
71	210			4	21	44	36	34	42	15	9	5					
72	105			4	8	20	15	21	21	11	3	1	1				
73	63			3	3	8	10	15	11	3	6	1	1	2			
74	23			2	1	3	4	5	7		1						
75	9				1	1	3	1	1	1			1				
76	6					1	1	1	3								
77	2							2									
78																	
79	2									2							
80 and over	1						1										
Total	2,622	6	69	209	380	540	503	392	287	138	57	23	11	3	3		1

P_1—
Number of cases: 439.
Height: Mean, 67.94 inches; standard deviation, 2.53±0.06 inches.
Chest circumference (expiration): 33.01 inches; standard deviation, 1.91± 0.04 inches.
Correlation: 0.2489±0.0302.

P_2—
Number of cases: 2,183.
Height: Mean, 67.97 inches; standard deviation, 2.67±0.03 inches.
Chest circumference (expiration): Mean, 32.82 inches; standard deviation, 1.99±0.02 inches.
Correlation: 0.2454±0.0136.

P_1 and P_2—
Number of cases: 2,622.
Height: Mean, 67.97 inches; standard deviation, 2.65±0.02 inches.
Chest circumference (expiration): Mean, 32.85 inches; standard deviation, 1.98±0.02 inches.
Correlation: 0.2440±0.0124.

TABLE 145.—*Correlation between height and weight in recruits with myopia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																											
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224
58 and under	3						2		1																				
59	10				3	2		1			3	1																	
60	11				1	1	1	3	3		2																		
61	32				1		10	4	4	4	3	2	1				2						1						
62	58				2	5	8	12	8	5	3	3	4	4	3				1										
63	108					7	8	14	18	16	14	10	5	3	8	2		1		1				1					
64	185				1	6	18	20	20	36	30	16	11	12	7	2	1	4					1						
65	304			1	4	9	24	25	45	33	49	39	26	17	10	5	4	5	4	1	2			1					
66	299					7	14	23	36	41	47	39	24	17	19	9	11	4	2	2	4								
67	348				2	2	8	25	33	39	50	46	41	32	24	12	14	8	4	2	2	1	1	1	1				
68	350						5	10	21	43	53	51	43	32	27	23	18	4	8	3	3		4	1			1		
69	235					1	2	4	16	20	26	29	29	24	23	27	9	7	6	2	2	2	3	1	1	1			
70	209						1	1	3	7	24	29	32	29	19	23	12	8	3	6	7	2			1	1	1		
71	132							1	1	4	10	8	20	8	16	16	15	8	9	7	1	1	2	3	1			1	
72	86								1	7	2	7	9	9	11	11	6	5	7	3	1	4		1	1				1
73	24											2		5		3	3	2	3	2		1	1		1		1		
74	17												1	2	2	1	1	1	4	1		3			1				
75	1																1												
76	6														1							1		1	3				
77	2														2														
Total	2,420			1	14	40	101	143	210	255	316	282	246	194	172	134	97	57	51	30	22	15	13	10	10	2	3	1	1

P_1—
Number of cases, 778.
Height: Mean, 67.23 inches; standard deviation, 2.83±0.05 inches.
Weight: Mean, 140.23 pounds; standard deviation, 18.07±0.31 pounds.
Correlation: 0.5121±0.0178.

P_2—
Number of cases, 1,642.
Height: Mean, 67.01 inches; standard deviation, 2.77±0.03 inches.
Weight: Mean, 138.75 pounds; standard deviation, 18.61±0.22 pounds.
Correlation: 0.4806±0.0128.

P_1 and P_2—
Number of cases, 2,420.
Height: Mean, 67.08 inches; standard deviation, 2.79±0.03 inches.
Weight: Mean, 139.23 pounds; standard deviation, 18.45±0.18 pounds.
Correlation: 0.4912±0.0104.

TABLE 146.—*Correlation between height and chest circumference (expiration) in recruits with myopia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
58 and under	3			1	1	1										
59	10			2	5	1	1	1								
60	11				3	2	4	2								
61	32	1	5	1	5	5	7	3	2	1	1	1				
62	58		5	6	9	10	11	9	2	3	2			1		
63	108		6	15	16	15	22	13	9	5	5	1	1			
64	185	2	8	17	40	36	26	26	21	6	2	1				
65	304	7	6	31	56	51	62	44	24	16	2	2	2			1
66	298	2	4	26	54	57	66	38	20	18	5	5	3			
67	347	1	5	39	51	64	70	45	34	26	11		1			
68	349	2	6	20	51	62	63	55	44	23	9	9	5			
69	255	2	6	19	21	45	45	30	37	13	8	4	3	2		
70	209		1	7	24	41	43	43	29	8	8	3	1	1		
71	132		1	4	10	23	23	24	17	14	8	2	4	1	1	
72	86		2	4	8	16	11	13	17	9	1	1	2	1	1	
73	24				1	4	5	5	4		2	3				
74	17					1	3	4	2	2	3		2			
75	4					1	1			1	1					
76	3				1	1		1								
77	2						1	1								
Total	2,417	17	55	192	356	436	464	357	262	145	68	32	24	6	2	1

P_1—Number of cases: 776.
Height: Mean, 67.23 inches; standard deviation, 2.83 ±0.05 inches.
Chest circumference (expiration): Mean, 33.13 inches; standard deviation, 2.12± 0.04 inches.
Correlation: 0.2177±0.0231.

P_2—Number of cases: 1,641.
Height: Mean, 67.01 inches; standard deviation, 2.76 ±0.03 inches.
Chest circumference (expiration): Mean, 32.89 inches; standard deviation, 2.12±0.02 inches.
Correlation: 0.2028±0.0160.

P_1 and P_2—Number of cases: 2,417.
Height: Mean, 67.08 inches; standard deviation, 2.78±0.03 inches.
Chest circumference (expiration): Mean, 32.97 inches; standard deviation, 2.12±0.02 inches.
Correlation: 0.2095±0.0131.

4. MYOPIA.

Myopia, or short-sightedness, is a constitutional hereditary defect of the lens; not that all myopics are born so, but that there is in many persons a constitutional tendency for the eye to become myopic under the influence of bad conditions of life, especially such as lead to abuse of the eyes.

(*a*) *Stature.*—The mean stature of 2,420 men found at mobilization camps in the first and second million with myopia is 67.08 inches, or 0.41 inch below the average stature of Table 1 for the first million. The mean stature for the myopics among the first million men was 67.23, and the second, 67.01. This group and that of hyperopics constitutes the shortest groups associated with the various defects other than that of astigmatics. The reason for the short stature of men with myopia is not difficult to infer. They were not rendered short because of eyesight, but many of them belong to races which have an especial tendency toward developing the myopic condition in the environment in which they prefer to live. As shown in "Defects Found in Drafted Men," 1920, defective vision in general has an especially high rate in the eastern manufacturing sections of the country, which include many French-Canadian and Polish Jews. Errors of refraction, of which myopia is the most common of the specified types, occur especially in urban districts and reach a maximum in New York City, a city characterized by a large proportion of Polish Jews. Indeed, it is well known that this race, which is one of the shortest races in the United States, is especially liable to this defect. Thus in the British report upon physical examinations of men of military age, 1917–1918 (Ministry of National Service [25], Vol. 1, p. 107), it is said that the very large Jewish population of Leeds helps to swell the number of cases of myopia, etc. We may conclude, therefore, that the short stature of persons with myopia is due in part to the high incidence of this defect in persons of short race.

Plate XXXIII gives a comparison between the statures of men found with myopia and the population at large. It is apparent that the population with myopia consists of a group of short men, some of whom are Russian and Polish Jews, who have a tendency toward myopia and short stature.

(*b*) *Weight.*—Of 2,420 men found with myopia at mobilization camps among the first and second million examined, the average weight was 139.23 pounds, or 2.31 pounds below the average. For the first million men the weight is 140.23 pounds and for the second million 138.75 pounds. This low weight of men with myopia is, of course, associated with their low mean stature. They are light in weight as a whole, not because myopia affects the weight, but because the myopics are commoner among certain small races than in the population at large. The standard deviation of weight in men with myopia was for the first million 18.07, or 0.65 above the average of the whole first million. The standard deviation of weight in men with myopia among the second million is 18.61, which tends to raise the excess of the standard deviation. The high standard deviation (or index of variability) of the weight of the myopics is, like the high standard deviations in respect to stature, due to the fact that the myopics constitute a marked deviation from the normal distribution inasmuch as it is weighted with excess of men of short stature.

The relation between the distribution of weights of the population with myopia and that of the population of recruits in general is shown graphically in Plate XXXVI. From this graph it appears that the population with myopia is characterized by small weight as, indeed, it is by small stature. This result merely supports the conclusion reached above that men with myopia include a racial group of small persons.

(*c*) *Chest circumference.*—Of 776 men found with myopia at mobilization camps among the first million, the average chest circumference at expiration is 33.13 inches. In the 1,641 men among the second million the average chest circumference is 32.89 inches. For the two groups together, 2,417 men, the mean chest circumference is 32.97. This average is somewhat less than the average chest circumference of the first million men, 33.22; the smaller chest circums ference of the myopic men is doubtless to be attributed to the large proportion of smaller men found among them. That the chest circumference is only slightly less than the average is due to the fact that just these shorter men have a relatively high chest circumference, in accordance with the generally greater robustness of shorter men.

The standard deviation of chest circumference is 2.12 for the first million men and 2.12 ± 0.02 for the second million men. The standard deviation for the myopic men among the first and second million combined is 2.12 ± 0.02. Thus the standard deviation is considerably greater than the average, which is to be explained on the same ground as the greater standard deviation of stature and weight, namely, on account of the excess of small men with absolutely small chest circumference.

In general, then, the conclusion to be drawn concerning the dimensions of myopic men is that myopia is especially characteristic of certain small races (especially the Polish and Russian Jews).

The relation between the distribution of chest circumferences in the population with myopia and the population of recruits in general is shown graphically in Plate XXXVII. Here we see that the chest girth for the population with myopia is slightly less than that of recruits in general, which is no doubt due to the fact that the population with myopia contains an excess of individuals of small races.

(*d*) *Robustness.*—The index of build of men with myopia is 30.95, which is 0.13 below the average for the United States. Pignet's index is 21.52. The men of this group belong in the class with medium constitution. For each inch of the average height there are 2.08 pounds of weight, as compared with the normal 2.097; and 0.492 inch of chest measure (expiration), as compared with the normal 0.492.

5. HYPEROPIA.

(*a*) *Stature.*—The average stature of 188 men found with hyperopia at mobilization camps among the first million is 67.28 inches; among the second million, 67.03 inches for 781 men; or for the total of 969 the mean stature is 67.08 inches, which is 0.41 inch below the average of all. This indicates that the hyperopic group contains an excess of short men. This is probably, as in the case of myopia, due less to any influence that hyperopia has upon growth than to the circumstance that hyperopia occurs in men that belong to the short races.

TABLE 147.—*Correlation between height and weight in recruits with hyperopia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under	3											1	1					1							
59	3							1							1				1						
60	6				1			1		1			1						1					1	
61	17					1	7	1	3	1	2			1	1										
62	21						6	3	3	4		1	2	1	1										
63	38					2	5	4	8	9	5	2	3												
64	70				1	1	5	12	8	13	9	9	4	2	3		2	1							
65	100					1	3	7	16	15	17	16	10	7	2	3	1	1	1						
66	133					2	6	8	16	24	15	23	15	6	11	3	1	2				1			
67	134						5	8	9	15	20	16	23	10	10	6	4	3	2	1	1		1		
68	150						1	3	7	17	29	17	25	21	8	3	4	5	5	3	2				
69	116							2	4	9	13	12	20	24	7	3	9	6	1	2	1		1	1	1
70	86								2	3	5	11	18	16	9	8	4	3	2	3		1			1
71	48								1	2	1	8	8	3	8	4	4	2	2	2			1	1	1
72	29									1	2	3	2	2	7	4	5	2	1						
73	9												1	1	1	2	1	2		1					
74	5											1			1	1			1	1					
75																									
76	1														1										
Total	969				2	7	38	50	77	114	118	120	133	94	71	37	35	28	17	13	4	2	3	3	3

P_1—
Number of cases: 188.
Height: Mean, 67.28 inches; standard deviation, 2.65±0.09 inches.
Weight: Mean, 139.13 pounds; standard deviation, 17.23±0.60 pounds.
Correlation: 0.4145±0.0407.

P_2—
Number of cases: 781.
Height: Mean, 67.03 inches; standard deviation, 2.73±0.05 inches.
Weight: Mean, 138.98 pounds; standard deviation, 16.10±0.27 pounds.
Correlation: 0.4596±0.0190.

P_1 & P_2—
Number of cases: 969.
Height: Mean, 67.08 inches; standard deviation, 2.72±0.04 inches.
Weight: Mean, 138.96 pounds: standard deviation, 16.29±0.25 pounds.
Correlation: 0.4511±0.0173.

TABLE 148.—*Correlation between height and chest circumference (expiration) in recruits with hyperopia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	5			1	1			1	2								
59	1							1									
60	6			2	1		1	2									
61	17			2	3	3	4	3	1	1							
62	21			3	3	7	5	2		1							
63	38		3	7	10	4	7	3	4								
64	70		4	10	11	15	12	9	3	5	1						
65	100		3	7	19	22	15	12	13	5	3						1
66	132		2	8	16	33	31	21	14	5	1	1					
67	134		2	5	19	27	33	23	13	7	1	3	1				
68	150		3	12	18	31	32	24	14	11	3	1	1				
69	116		2	6	11	12	25	23	18	13	2	2	1				1
70	86			4	7	12	22	10	15	10	3	1	2				
71	48		1		2	11	12	10	4	3	2	2		1			
72	29			1	2	4	3	7	9	2			1				
73	9						1	5	1		2						
74	5					1	1	1	2								
76	1						1										
Total	968		20	68	123	182	205	157	113	63	18	10	6	1			2

P_1—
Number of cases, 188.
Height: Mean, 67.28 inches; standard deviation, 2.65±0.09 inches.
Chest circumference (expiration): Mean, 33.26 inches; standard deviation, 2.03±0.07 inches.
Correlation: 0.2640±0.0451.

P_2—
Number of cases, 780.
Height: Mean, 67.03 inches; standard deviation, 2.74±0.05 inches.
Chest circumference (expiration): Mean, 33.00 inches; standard deviation, 1.96±0.03 inches.
Correlation: 0.2317±0.0229.

P_1 and P_2—
Number of cases, 968.
Height: Mean, 67.08 inches; standard deviation, 2.73±0.04 inches.
Chest circumference (expiration): Mean, 33.05 inches; standard deviation, 1.98±0.03 inches.
Correlation: 0.2393±0.0204.

The standard deviation in stature of hyperopics is 2.65 for the first million men and 2.73 for the second million men, or 2.72 $\pm$ 0.04 for the two combined. This is only slightly greater than the standard deviation of stature for the whole of the first million men; the difference is much less than the probable error. Apparently, even though the mean stature of the hyperopics is slightly depressed, they conform closely to the average distribution of frequencies and hence possess the average variability in stature, of the population in general. The normal variability oscillates about a low mode.

(*b*) *Weight.*—Of the 188 men found with hyperopia in mobilization camps among the first million men, the mean weight is 139.13 pounds, or 2.41 pounds below the mean weight of the first million. This deficiency in weight is doubtless associated with the small size of hyperopics. The mean weight for the hyperopics among the second million is 138.98 pounds. For the two groups together it is 138.96 pounds; 2.58 pounds below the mean weight of the whole of the first million. This low weight is again doubtless associated with the small mean stature. The variability of hyperopics is indicated by the standard deviation of 16.29 $\pm$0.25, which is more than 1 pound below the standard deviation for the whole of the first million men. This markedly low standard deviation for weight indicates that we have in hyperopics a fairly homogeneous group of men of slightly less than normal weight.

The relation between the distribution of weights in the population found with hyperopia and the population of recruits in general is shown in Plate XXXIV. As the number of persons in this population is small, the irregularity of the curve of distribution is probably not significant. On the whole the curve of weights of persons with hyperopia falls below that of the population in general.

(*c*) *Chest circumference.*—In 188 men found with hyperopia at mobilization camps among the first million, the average chest circumference is 33.26 inches, or 0.4 inch above the average chest circumference of the whole first million. In the 781 men found with hyperopia in the second million, the average chest circumference is 33.00 inches. For the 969 men in both, the chest circumference is 33.05 inches, or 0.17 inch below the mean chest circumference for the whole of the first million men. This relatively small mean chest circumference is doubtless associated with the generally small size of men with hyperopia. The standard deviation of chest circumference of men with hyperopia among the first million is 2.03, for the second million 1.96$\pm$0.03; for the total 968, 1.98$\pm$0.03; a variability which again is slightly, but hardly less significantly, than the standard deviation of the first million men, which is 2.01.

We may conclude that the hyperopics, like the myopics, include an especially large proportion of short men; in fact, they constitute more nearly a distinct lot of short men than the myopics. It is probable that this also is a matter of race.

The distribution of chest circumference in the population with hyperopia and the population of recruits in general is shown graphically in Plate XXXVII. It appears that the chest girth is slightly less than that of the population of recruits in general, which is probably associated with the smaller average size of the population with hyperopia.

(*d*) *Robustness.*—Men with hyperopia have an index of build of 30.88, or slightly less than that of men with myopia, and 0.19 less than the average of the United States. Pignet's index is 21.44, which places them in the medium group. For each inch of the average height there are 2.07 pounds of weight as compared with the normal 2.097, and 0.493 inch of chest measurement expirations, as compared with the normal 0.492.

6. ASTIGMATISM.

(*a*) *Stature.*—The average stature of 517 men found with astigmatism at mobilization camps among the first million is 66.95 inches; for the 1,075 among the second million it is 67.13; for the two groups combined, 1,592 men had the mean height of 67.07, which is 0.42 below the mean stature of the whole population of the first million men. The stature of astigmatics among the first million is 0.54 inch below the average stature of men of the first million. This is certainly a significant difference. Indeed if one compares in Table 184 relative distribution of statures in the line labeled at the left "Astigmatism" with the bottom line of the table, it will be seen that the short statures, 62–66 inches, inclusive, are uniformily in excess, whereas the taller statures, 68 inches upward, are for the most part in deficiency. However, there are relatively few astigmatics among the very short men, 61 inches and under (except a few cases 58 inches and under). This deficiency in frequencies of statures 61 and 59 inches strikingly separates astigmatics from the myopics, which have an excess in these stature classes. The excess of myopics in the lower stature classes does not extend above 65 inches, whereas in the astigmatics the excess extends to 66 inches. Astigmatics form a group that is as short on the average as the myopics, but it does not include so many of the very short men. The standard deviation for the astigmatics found among the 2,000,000 men is 2.71, which is probably not significantly less than the standard deviation of myopics of 2.79 inches. This indicates that though the astigmatics are a short people they do not include so many of an extremely short race as do the myopics.

There are several possible explanations of this extraordinary deficiency in stature of men with astigmatism found in mobilization camps. First, the hypothesis may be entertained that astigmatism is especially common in cities and that the population in cities contains men of inferior nutrition and consequently shorter stature than those of rural districts. This hypothesis may be tested by comparing the statures of men of eastern manufacturing sections with those of the population at large. For the eastern manufacturing group the mean stature is 66.77 inches; for the population as a whole, 67.49. But it has been already pointed out that this deficiency of eastern manufacturing sections can not be ascribed merely to conditions of life in these sections, but doubtless to the fact that shorter races, immigrated from Europe, have remained in these sections. The stature of people from Chicago is 67.09, which is only 0.04 inch below the average of the whole country, and from Denver is 67.67, which is slightly greater than the average of the whole country. Recruits from St. Paul and Minneapolis average still higher, 67.83. It is clearly not urbanity, but race, that chiefly determines the smaller stature of some cities. The association of astigmatic persons with cities is to be ascribed rather to the short races living therein than to the fact that conditions of life in cities may be bad for the eyes. Perhaps one may say that peoples with hereditary tendency toward astigmatism are more apt to develop the tendency in cities than when they live in rural districts.

The deficiency in stature in men found with astigmatism may be due to racial factors. It is indeed well known that defects of vision, including astigmatism, are exceptionally frequent in recruits coming from New York city ("Defects Found in Drafted Men,"[9] p. 366). The rate for errors of refraction is given for New York city as 68.8 per 1,000. It was, however, still greater in Boston, 73.6. The high rate of errors of refraction of the classified cases of which astigmatism, next to myopia, is the largest item, is, as pointed out, probably due to the exceptionally large number of Hebrews in the cities. However, astigmatism is less predominantly found among the Hebrews than myopia, and that is probably why Boston exceeds New York city in the proportion of errors of refraction. Possibly there are other short races which are pecularily subject to astigmatism (as, for example, South Italians, French Canadians, and Portuguese) which may occur in greater proportion in Boston than in New York city.

We may conclude, therefore, that the association of short stature with astigmatism is an association of two independent traits which are both racial characteristics.

(*b*) *Weight.*—In 517 men found with astigmatism at demobilization camps among the first million, the average weight is 138.59 pounds; for 1,075 men in the second million, 139.43 pounds; and for 1,592 men in both groups together, 139.16, or 2.38 pounds below the average for the whole of the first million men. This deficiency is, of course, associated with generally smaller size of the men found to have astigmatism. The standard deviation of this weight is for the first million men 17.25 pounds; for the second million 16.87 pounds; and for both together it is 17.00 ± 0.20, which is 0.42 of a pound below the average of the whole of the first million men, a difference which is not very significant, being only a little more than twice the probable error. It is, however, in line with the low standard deviation found in men with eye defects, indicating one or more short racial groups.

The relation between the distribution of weights in the population found with astigmatism and that of the population of recruits in general is shown in Plate XXXIV. It appears from this graph that the population with astigmatism has a weight that is below the average of the population in general, a condition which is associated with the small stature of many of them. The mode of the astigmatic population is 2 or 3 pounds less than that of the population at large and stands much higher than the average population. This indicates that astigmatics are less variable in weight than the average, although it appears that they are more variable in stature than the population at large. The conclusion is justified, that in the population with astigmatism there is an excess of small persons, doubtless belonging to one or more small races.

TABLE 149.—*Correlation between height and weight in recruits with astigmatism, first (P_1) and second (P_2) million draft recruits.*

Height in inches.	Total.	Weight in pounds.																								
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214
58 and under	2											1					1										
59	2							1						1													
60	5					1			1			1	2														
61	14				1		2	2	4	2			1		1			1									
62	41				3		7	7	5	11	1	2	2	1				1				1					
63	88				1	2	12	10	15	15	11	9	6	3	1	2							1				
64	129					1	11	15	15	23	25	14	8	3	5	5	1		2	1							
65	163					4	11	16	28	17	27	21	14	4	10	3	3	1	1	2	1						
66	230					4	10	16	24	28	41	30	26	14	12	13	4	3	4		1						
67	220				1	1	3	10	14	24	37	37	20	22	18	12	6	6	5	1	1	1	1				
68	228				1	1	8	2	14	16	27	40	39	21	17	14	13	5	6	3	1						
69	171				1			1	7	16	19	19	28	24	17	12	8	6	6	3		1	2	1			
70	131							2	6	4	13	22	15	26	12	7	5	5	3	2		5	1	2	1		
71	90								1	4	10	13	6	15	10	8	5	6	5	2	2				1	1	1
72	43							1			4	3	5	7	7	6	3	2	1	2		1	1				
73	21										1			3	1	3	7	2	2	1	1						
74	9									1					1		1	2		1	1	1	1				
75	3											1			1					1							
76	1																								1		
77																											
78	1																1										
Total	1,592				8	14	64	83	134	161	216	213	172	144	113	85	58	40	35	19	8	10	7	3	3	1	1

P_1—
Number of cases: 517.
Height: Mean, 66.95 inches; standard deviation, 2.77±0.06 inches.
Weight: Mean, 138.59 pounds; standard deviation, 17.25±0.36 pounds.
Correlation: 0.5452±0.0208.

P_2—
Number of cases: 1,075.
Height: Mean, 67.13 inches; standard deviation, 2.68±0.04 inches.
Weight: Mean, 139.43 pounds; standard deviation, 16.87±0.25 pounds.
Correlation: 0.4121±0.0171.

P_1 and P_2—
Number of cases: 1,592.
Height: Mean, 67.07 inches; standard deviation, 2.71±0.03 inches.
Weight: Mean, 139.16 pounds; standard deviation, 17.00±0.20 pounds.
Correlation: 0.4573±0.0134.

TABLE 150.—*Correlation between height and chest circumference (expiration) in recruits with astigmatism, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
58 and under	2						1			1						
59	2				1			1								
60	5					1	1	2	1							
61	14		1	1	2	5		4		1						
62	41		1	1	8	12	8	6	2	1	1			1		
63	88		2	12	16	14	20	11	10	2				1		
64	129		6	16	18	26	28	19	6	6	1	2	1			
65	162		5	14	31	35	30	20	17	6	3		1			
66	230		2	23	40	48	47	36	15	10	5	1	1	1	1	
67	220		3	14	25	60	36	36	20	14	5	5	1			1
68	226		2	9	36	49	42	31	31	20	3		2	1		
69	170		4	3	18	25	48	26	21	12	7	2	2	2		
70	130			4	18	26	30	18	12	6	10	4	1	1		
71	90		2	6	10	20	11	17	7	9	4	1	2	1		
72	44			1	1	5	11	14	6	4	1	1				
73	20					2	5	7	3	2			1			
74	9			1		1	1	1	2	2	1					
75	3							1	1				1			
76	1											1				
77																
78	1							1								
Total	1,587		28	105	224	329	319	251	154	96	41	17	13	8	1	1

P_1—Number of cases: 517.
Height: Mean, 66.95 inches; standard deviation, 2.77±0.06 inches.
Chest circumference (expiration): Mean, 33.06 inches; standard deviation, 2.02±0.04 inches.
Correlation: 0.2515±0.0278.

P_2—Number of cases: 1,070.
Height: Mean, 67.13 inches; standard deviation, 2.68±0.04 inches.
Chest circumference (expiration): Mean, 33.01 inches; standard deviation, 2.01±0.03 inches.
Correlation: 0.1641±0.0201.

P_1 and P_2—Number of cases: 1,587.
Height: Mean, 67.07 inches; standard deviation, 2.71±0.03 inches.
Chest circumference (expiration): Mean, 33.03 inches; standard deviation, 2.01±0.02 inches.
Correlation: 0.1928±0.0163.

(*c*) *Chest circumference.*—Of the 517 men found with astigmatism at mobilization camps among the first million, the average chest circumference is 33.06 inches; that of the 1,070 astigmatics found in the second million is 33.01; and for 1,587 men in both together it is 33.03, or 0.19 inch less than the average mean chest circumference of the first million men. This small chest circumference is associated with the low average stature and weight. The standard deviation of the chest circumference is for astigmatics among the first million men, 2.02; for the second million, 2.01; and for both groups together, 2.01 ± 0.02. This is the same as the standard deviation in chest circumference for the whole of the first million men and indicates that the astigmatics form, on the whole, quite as homogeneous a group as the population at large, although a group slightly below the average in size.

The relation between the distribution of chest circumference in the population found with astigmatism and the population of recruits in general is shown graphically in Plate XXXVII. It appears that the population with astigmatism has, on the average, a small chest circumference, which is no doubt associated with their prevailingly small height and weight, owing to the fact that this part of this population contains an excess of small races.

(*d*) *Robustness.*—The index of build of men with astigmatism is 30.94, or only 0.13 unit below the average of the United States. This index of robustness (Pignet[20]) is 21.38, which is close to that of men with hyperopia. For each inch of the average height there are 2.08 pounds of weight, as compared with the normal 2.097, and 0.493 inch of chest measurement (expiration), as compared with the normal 0.492.

It will be observed that the foregoing three groups of men with errors of refraction have all an index of build and robustness slightly inferior to the average of the United States. This inferiority is to be ascribed less to any influence of errors in refraction upon the body than to the fact that errors of refraction are especially marked in certain races, especially Polish and Russian Jews, who are physically less well developed than the average.

7. HYPERTROPHIC TONSILLITIS.

Enlarged tonsils of such degree as to warrant record were found in 23,732 men at mobilization camps among the first million, and 28,299 among the second million draft recruits.

(*a*) *Stature.*—The average stature of men found among the first million to be affected with hypertrophic tonsillitis is 67.47 inches, which is 0.02 inch below the average stature of the whole population. The average stature of men found in the second million to have hypertrophied tonsils is 67.48. For the two combined, 52,031 men, the average is 67.48, which is practically the mean stature. We may conclude that, so far as stature is concerned, men with hypertrophic tonsils are typical of the whole population. This indicates that there is probably no race that is especially subject to this disease, and that apparently it has not affected the body nutrition, and hence the development. The standard deviation of height in the two groups is 2.71 and 2.74, respectively, and for the two combined, 2.73. The index of variability is practically the same as for the population as a whole, which confirms the conclusion that hypertrophic tonsils are fairly uniformly distributed through the population, so far as stature is concerned.

The distribution of statures in the population with hypertrophic tonsillitis as compared with the whole population of recruits is indicated graphically in Plate XXXIII. The distribution of statures nearly coincides in the two groups, but there are more men slightly above mediocre stature than below in the tonsillitis population than in that at large.

(*b*) *Weight.*—Of 23,732 men found with hypertrophic tonsils among the first million at mobilization camps the average weight is 142.19, and among 28,299 men in the second million 141.46. Taking both groups together, 52,031, we have a mean weight of 141.79, which is 0.25 above the average weight of the whole of the first million men examined. This is a real difference, though not a large one. The standard deviation in weight is for the first million men, 17.77 pounds; for the second million, 17.84 pounds; and for the two combined, 17.80 ± 0.04. This is an excess of 0.38 pound over the average for the whole population of the first million men, a difference which is about nine times the probable error, and hence is significant. This indicates that in respect to weight, men with hypertrophic tonsils are more variable than the average population and suggests that the group includes an excess of men whose weight is above and a group whose weight is below the average. By comparing the distribution of weights in the hypertrophic tonsil group with that of the totals in the last line of Table I we find that the commonest weight for both the total and the hypertrophic tonsil group is 137 pounds and that, though there is a larger proportion of men in the modal group among those with large tonsils

TABLE 151.—*Correlation between height and weight in recruits with tonsillitis (hypertrophic), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229	230–234	235 and over.
58 and under	35			1		1	1	2	5	3	4	4	7	1	3	1			1	1												
59	82				2	4	8	9	10	11	7	10	6	5	5	1	1	1	2													
60	206			3	8	24	25	30	29	28	21	14	5	7	6	4	1		1													
61	492	3		4	19	38	61	90	73	55	49	36	25	16	9	8	2	2	1	1												
62	999		1		14	63	133	153	169	159	103	68	52	31	15	15	8	6	3	1	4	1										
63	1,962			1	14	53	213	281	307	301	262	180	121	76	54	33	25	15	9	8	6	2			1							
64	3,211			2	16	69	224	367	497	515	469	333	261	137	120	58	48	35	18	20	8	6	5	1	2							
65	5,004			2	12	49	227	496	618	752	709	673	468	328	223	153	81	75	44	28	20	21	8	11	5	1						
66	6,392				6	61	173	370	719	840	1,004	906	730	514	403	225	149	80	78	46	31	21	16	3	14	3						
67	7,571				4	23	126	305	590	922	1,057	1,091	985	775	575	386	226	158	114	71	52	29	25	27	21	6	2	1				
68	7,655				2	12	59	180	406	688	959	1,138	1,079	837	749	511	313	257	148	118	70	38	27	31	26	5	1	1				
69	6,748					1	26	99	281	480	684	870	963	868	758	525	396	256	168	105	78	52	35	34	48	8	3	4	5	1		
70	4,925					3	8	38	107	217	388	570	692	721	565	482	329	260	191	111	77	41	44	30	24	6	5	2	2	4	7	1
71	3,250						1	12	25	89	189	274	407	459	419	339	322	223	142	132	72	40	34	22	33	2	5	1	1	5	1	1
72	1,913				1		1	4	19	27	70	138	193	223	257	208	230	182	104	80	55	30	31	12	30	7		1	2	2	4	2
73	942							2	3	9	32	34	92	104	119	116	111	95	73	46	38	11	21	11	11	3		2	2	3	1	3
74	400							4	2		4	8	23	26	42	60	50	56	27	27	26	12	8	11	7	1	1	2		3		
75	143								1		1	2	10	4	11	17	18	16	11	11	17	7	5	5	5					1		1
76	57											3	1	3	6	5	4	9	9	2	8	2	1	2	2							
77	22								1	1	1		1		2	4	3	3		1		2	2	1								
78	11										1	1		2	1	2	1		1		1	1										
79	10											1	1	2	1		1	1		1	1			1								
80 and over	1																								1							
Total	52,031	3	1	13	98	401	1,286	2,442	3,862	5,097	6,014	6,354	6,122	5,139	4,343	3,153	2,319	1,730	1,145	810	564	316	262	202	230	42	17	14	12	19	13	8

P_1—
Number of cases: 23,732.
Height: Mean, 67.47 inches; standard deviation, 2.71±0.01 inches.
Weight: Mean, 142.19 pounds; standard deviation, 17.77±0.06 pounds.
Correlation: 0.4838±0.0034.

P_2—
Number of cases: 28,299.
Height: Mean, 67.48 inches; standard deviation, 2.74±0.01 inches.
Weight: Mean, 141.46 pounds; standard deviation, 17.84±0.05 pounds.
Correlation: 0.5001±0.0030.

P_1 and P_2—
Number of cases: 52,031.
Height: Mean, 67.48 inches; standard deviation, 2.73±0.01 inches.
Weight: Mean, 141.79 pounds; standard deviation, 17.80±0.04 pounds.
Correlation: 0.4762±0.0026.

TABLE 152.—*Correlation between height and chest circumference (expiration) in recruits with tonsillitis (hypertrophic), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	35		1	5	4	10	5	7	2	1							
59	80		2	5	14	14	18	12	8	5	1	1					
60	206	1	12	27	37	37	47	23	15	6	1						
61	490	3	26	61	80	105	90	71	26	16	9	2	1				
62	999	10	40	113	185	238	175	125	62	24	14	7	6				
63	1,958	15	68	199	339	415	352	278	160	74	28	16	10	3		1	
64	3,208	15	133	286	543	693	606	443	223	147	67	25	23	1	1	1	1
65	5,004	24	160	406	757	993	984	712	487	258	114	53	48	4	1		3
66	6,389	16	156	503	906	1,296	1,318	970	615	333	132	77	51	5	7	2	2
67	7,567	15	158	491	988	1,420	1,587	1,235	800	445	218	100	84	11	5	3	7
68	7,652	8	126	390	890	1,435	1,631	1,333	855	493	258	129	82	9	10	1	2
69	6,747	10	74	329	695	1,227	1,304	1,254	860	517	249	110	89	19	5	2	3
70	4,917	8	63	193	454	812	1,017	924	671	394	213	88	48	14	8	2	8
71	3,250	5	20	98	256	491	648	655	482	300	155	72	49	10	3	2	4
72	1,906	1	11	38	140	261	360	395	319	204	84	47	35	2	2	3	4
73	939		7	15	68	101	193	188	183	91	41	28	17	2	1	2	2
74	397			6	21	43	68	87	75	45	26	16	8	2			
75	142			1	3	16	21	35	28	15	10	7	2	1		2	1
76	55			1	2	4	7	12	9	11	5	3	1				
77	22			1		2	2	6	2	6	3						
78	11					3	1	2	4	1							
79	10				2		1	2	1	3	1						
80 and over	1													1			
Total	51,985	131	1,057	3,168	6,384	9,616	10,435	8,769	5,887	3,389	1,629	781	554	84	43	21	37

P_1—
Number of cases: 23,712.
Height: Mean, 67.47 inches; standard deviation, 2.70±0.01 inches.
Chest circumference (expiration): Mean, 33.29 inches; standard deviation, 2.03±0.01 inches.
Correlation: 0.2284±0.0042.

P_2—
Number of cases: 28,273.
Height: Mean, 67.48 inches; standard deviation, 2.74±0.01 inches.
Chest circumference (expiration): Mean, 33.08 inches; standard deviation, 2.10±0.01 inches.
Correlation: 0.1929±0.0039.

P_1 and P_2—
Number of cases: 51,985.
Height: Mean, 67.48 inches; standard deviation, 2.73±0.01 inches.
Chest circumference (expiration): Mean, 33.18 inches; standard deviation, 2.07±0.004 inches.
Correlation: 0.2085±0.0028.

than in the total, yet men of 177 pounds are likewise in excess among those with enlarged tonsils, and the same is true of all weights above 192 pounds. There is, therefore, a clear excess of very heavy men with hypertrophic tonsils, and this accounts at once for the high mean weight and the high standard deviation of such men. That inflamed and enlarged tonsils should be more prevalent in heavy (though not tall men) is a point which should attract the attention of the physiologist and pathologist and be of help in understanding the causes of this condition. As shown in "Defects Found in Drafted Men,"[9] (1920, p. 132), the States with the highest ratio of hypertrophic tonsils are West Virginia, Virginia, and Pennsylvania, containing a large proportion of tall men, especially the mountaineers of the first two named States. Men from these States were examined at one camp where special attention was paid to infections of the head and throat, and it seems probable that there were thus brought into the total an exceptionally large number of tall men recorded with tonsillitis. Another center of high incidence of tonsillitis comprised the States of Mississippi, Arkansas, Oklahoma, and the contiguous States of Louisiana and Alabama. Southern whites are known to show a high ratio of this disease. The southern agricultural whites at least are above the average in stature, and this again contributes to the result. Finally, exceptionally high rates for tonsillitis (more than double the average) were found in the mining, Indian, and Scotch sections of the country, in all of which the average weight is high. Tonsillitis may possibly be associated with conditions in the mining groups, but the same explanation would not hold in the case of groups occupying Indian reservations and the Scotch. The large amount of tonsillitis found in New Mexico, Colorado, and California may perhaps be associated with the large amount of tuberculosis found in these States, due to the immigration thither of persons with this disease, but that there is a causal relation between the two diseases must not be hastily concluded, both because the defect rate for tonsillitis in Arizona, in which the rate for tuberculosis is highest, is below the average, but also because men with tuberculosis have a weight far below the average, while those with tonsillitis have a weight slightly above the average.

The relation between the distribution of weights of the population with hypertrophic tonsillitis and that of recruits in general is shown in Plate XXXVI. The graph brings out strikingly the fact that the population with hypertrophic tonsillitis differs in weight, as indeed in stature, in no important respect from the population at large.

(c) *Chest circumference.*—In the 23,712 men found with hypertrophic tonsils at mobilization camps among the first million, the average chest circumference is 33.29 inches, or 0.07 inch above the average of the first million. The average chest circumference for the 28,273 men with tonsillitis among the second million is 33.08, and the average for the two lots, 51,985 men, is 33.18 inches, which is close to the average for the whole of the first million men examined (33.22). Despite the slight excess of weight of these men, therefore, we have a slight deficiency of chest circumference. It is doubtful, however, if this is significant. The standard deviation of chest circumference of men with tonsillitis among the first million was 2.03 ± 0.01; for the second million, 2.10 ± 0.01; and for the two groups it is 2.07 ± 0.004, which is 0.06 above the standard deviation of chest circumference for the whole. This indicates a slight lack of homogeneity in the chest circumference, suggestive of possibly two groups. There is a very slight excess in the proportion of men of 35 inches upward with hypertrophic tonsillitis, and a corresponding slight deficiency of men 32 inches and under.

The relation between the distribution of chest circumference in the population with hypertrophic tonsillitis and the population of recruits in general is shown graphically in Plate XXXVII. The two curves nearly coincide, as is the case also in height and weight, indicating that the population with hypertrophic tonsillitis is nearly a random sample of the whole population.

(*d*) *Robustness.*—The index of build of men with hypertrophic tonsillitis is 31.14, which is 0.07 above the average of the United States. Pignet's index is 20.85. Pignet's index places the men with hypertrophic tonsillitis in the class with good constitution. For each inch of the average height there are 2.10 pounds of weight, as compared with the normal 2.097, and 0.492 inch of chest measurement (expiration), as compared with the normal 0.492.

8. TACHYCARDIA, SIMPLE.

Exceptionally rapid heart beat without other indications of organic disease was assigned to this category.

(*a*) *Stature.*—Of the 447 men with this defect among the first million the average stature is 67.73 inches, and in the 1,700 men found with the defect among the second million it is 67.76 inches. Of both groups together, 2,147 men, the mean stature is 67.76, which is 0.27 inch above the average stature of the whole of the first million men. The average stature of men found with tachycardia among the first million men is 0.24 inch above the average of the whole. This excess in stature of men with tachycardia is of the same order as the excess stature of men with exophthalmic goiter, with which some cases of simple tachycardia are probably associated. As shown in "Defects Found in Drafted Men" (p. 137), the highest rate for tachycardia is found in the State of Michigan. High rates are found also in South Dakota, Washington, and Wisconsin. These are all States occupied by men of exceptionally tall stature, and they have, therefore, influenced the average stature of men found with tachycardia. Tachycardia is indeed found especially among the Scandinavian, German, and Finn sections, which are those in the central Northern States in the Great Lakes region. It seems clear that the tall stature of some of the men with tachycardia is due to thyroid disturbance, which is again due to the fact that some races of men of prevailingly tall stature are especially predisposed to goiter or have settled in the geographic districts in which goiter is induced. The standard deviation of stature of men found with simple tachycardia among the first million is 2.71 inches, among the second million 2.66. For both groups it is 2.68 ± 0.03. The small standard deviation of the tachycardia group is possibly significant, indicating that there has been something of a selection of tall men and that the tendency to tachycardia is not uniformly distributed through all statures. This is shown also in Table 184 through a comparison of the rates in the line "Simple tachycardia" with the total rates at the bottom of the table. Here we see that the rates for tachycardia are abnormally high in men with stature of 69 inches and over, and abnormally low in men with stature of less than 69 inches.

TABLE 153.—*Correlation between height and weight in recruits with tachycardia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																													
		89 and under.	90–94.	95–99.	100–104.	105–109.	110–114.	115–119.	120–124.	125–129.	130–134.	135–139.	140–144.	145–149.	150–154.	155–159.	160–164.	165–169.	170–174.	175–179.	180–184.	185–189.	190–194.	195–199.	200–204.	205–209.	210–214.	215–219.	220–224.	225–229.	230–234.	235 and over.
58 and under	2										2																					
59	2								1	1																						
60	7				2		1	1	1	1				1																		
61	16				2	4	2	4		1				1		1	1															
62	26				3	4	2	2	7		1	2	3	1									1									
63	67				1	8	5	11	6	13	7	6	1	2	1	1		1			1		1	2								
64	109				3	3	6	15	24	17	9	9	11	4	2	3					1	1	1									
65	187				3	13	20	20	21	37	21	15	15	5	3	2	7	1	1	1	1	1										
66	265				1	5	25	25	34	47	23	34	27	19	11	2	4	3		1	2			2								
67	292					2	8	18	33	38	39	50	27	23	17	10	8	4	3	3	3	1	1	1	1	2						
68	309				1	3	6	19	38	35	52	43	34	26	19	5	12	3	4	3	3	1	2									
69	330						11	11	22	35	48	46	33	37	31	23	7	7	6	3	4	1	1	1	1	2						
70	243						2	6	17	19	32	34	37	27	27	8	14	8	11					1								
71	130				1			4	7	13	15	8	15	16	19	8	12	2	4	1	1	1	1		1	1						
72	74					1	2		2	3	5	8	11	11	7	9	1	4	4	1		1	1	1								2
73	54									1	3	6	12	7	9	5	2	4	1	3		1										
74	19										2		4	2	2	2	2	1	3			1										
75	11									1				2	2	3		2		1												
76	3											1			1	1																
77	1																1															
Total	2,147				17	43	90	136	213	262	259	262	230	184	151	83	71	40	37	17	16	9	9	8	3	5						2

P_1—
Number of cases: 447.
Height: Mean, 67.73 inches; standard deviation, 2.71±0.06 inches.
Weight: Mean, 137.06 pounds; standard deviation, 17.36±0.39 pounds.
Correlation: 0.4546±0.0253.

P_2—
Number of cases: 1,700.
Height: Mean, 67.76 inches; standard deviation, 2.66±0.03 inches.
Weight: Mean, 137.45 pounds; standard deviation, 17.63±0.20 pounds.
Correlation: 0.3523±0.0143.

P_1 and P_2—
Number of cases: 2,147.
Height: Mean, 67.76 inches; standard deviation, 2.68±0.03 inches.
Weight: Mean, 137.37 pounds; standard deviation, 17.57±0.18 pounds.
Correlation: 0.3757±0.0125.

TABLE 154.—*Correlation between height and chest circumference (expiration) in recruits with tachycardia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	24	35	36	37	38	39	40	41	42	43 and over.
58 and under	2				1			1									
59	2			2													
60	7		2		2	2		1									
61	16		3	3	1	3	4	1	1								
62	26		5	2	5	6	3		3	2							
63	67		6	6	10	13	11	13	2	2	4						
64	109		5	15	29	11	21	8	9	7		1		1	1	1	
65	187		8	19	39	38	44	15	11	9	1	1	1	1			
66	265		14	23	50	52	48	36	22	15	3		1	1			
67	290		9	17	58	52	69	27	32	11	9	5				1	
68	309		9	31	34	65	68	51	30	10	5	3	2	1			
69	330		9	20	47	72	53	68	30	16	7	5	2		1		
70	242		5	17	32	46	52	39	27	13	4	4	1	1		1	
71	129		3	8	11	27	30	16	16	10	4	2	2				
72	74			4	4	9	22	19	7	4		2			1	1	1
73	54		1	1	6	10	13	10	9	2		1		1			
74	19					3	6	3	4	3							
75	11				1	1	3	2	4								
76	3					1		1	1								
77	1								1								
Total	2,143		79	168	330	411	447	311	209	104	37	24	9	6	3	4	1

P_1—Number of cases: 447.
Height: Mean, 67.73 inches; standard deviation, 2.72±0.06 inches.
Chest circumference (expiration): Mean, 32.79 inches; standard deviation, 2.03±0.05 inches.
Correlation: 0.2507±0.0298.

P_2—Number of cases: 1,696.
Height: Mean, 67.76 inches; standard deviation, 2.66±0.03 inches.
Chest circumference (expiration): Mean, 32.81 inches; standard deviation, 2.05±0.02 inches.
Correlation: 0.1548±0.0160.

P_1 and P_2—Number of cases: 2,143.
Height: Mean, 67.76 inches· standard deviation, 2.68±0.01 inches.
Chest circumference (expiration): Mean, 32.81 inches; standard deviation, 2.04±0.02 inches.
Correlation: 0.1769±0.0141.

The relation between the distribution of statures in the population with simple tachycardia and that of the population of drafted men in general is shown in Plate XXXIII. The graph shows at a glance that the population with simple tachycardia consists of men strikingly taller than the average. There are relatively fewer men with statures from 61 to 68 inches and relatively more men with statures 69 to 76 inches. The mode is shifted from 67½ to 69 inches. This shows that men with simple tachycardia are prevailingly tall men. This result is, as stated, probably not due to the influence of tallness, but to the fact that simple tachycardia is in some cases associated with disturbances of the thyroid gland, and this in turn by conditions in those sections that are inhabited by tall races, largely the Scandinavians. However, the possibility that great size of the body may be responsible for rapid heart beat, apart from thyroid disturbance, must not be overlooked.

(*b*) *Weight.*—Of 447 men found with simple tachycardia in the first million examined at camps the average weight is 137.06 pounds, which is 4.48 below the average for the whole first million men. Of tachycardia cases among the second million, 1,700 men, the mean weight is 137.45 pounds; and for both combined, 2,147 men, it is 137.37 pounds, which is 4.17 pounds below that of all the first million men. This marked deficiency in weight, despite tall stature, must certainly be significant and suggests an insufficiency in metabolism. The standard deviation in weight of tachycardia cases in the first million men is 17.36; in the second million men, 17.63; and for both lots together, 17.57 ± 0.18. The difference from the standard deviation for the average of the whole first million is only 0.15, or about once the probable error, so that the difference is probably not a significant one, and the group of tall but slender men, who are especially liable to tachycardia, constitutes a group which has nearly the same distribution about the mode as has the whole population.

The relation between the distribution of weight of the population found with simple tachycardia and the population of recruits in general is shown graphically in Plate XXXVI. This indicates that the population with tachycardia is below average weight. The irregularity in the curve is probably due to the small number of cases. This deficiency in weight of the population with tachycardia is the more striking in view of the fact that persons with the disease are on the whole taller than the average. The result is probably due to an insufficiency of nutrition caused by the condition itself.

(*c*) *Chest circumference.*—Of 447 men found with simple tachycardia at mobilization camps among the first million the average chest circumference is 32.79 inches, or 0.43 inch less than the average chest circumference of the whole first million men. In the 1,696 men found among the second million the average chest circumference is 32.81, and for the two lots together, 2,143 men, the average chest circumference is 32.81, which is 0.41 inch below the average. This low mean chest circumference of men with tachycardia is associated with their low weight. The standard deviation of chest circumference was for men of the first million 2.03, and for the second million 2.05, and for the two combined 2.04 ± 0.02. This is only 0.03 inch above the average for the whole first million, a difference which is probably not significant, indicating that the chest circumference of the slender men was not more variable around the new mode than the population in general.

The relation between the distribution of chest girth in the population found with simple tachycardia and that of the population of recruits in general is shown in Plate XXXVIII. One sees that the population with simple tachycardia has a chest circumference which is below the average, corresponding with the low average weight, despite the high average stature. The slender form is probably due to the disturbance of nutrition consequent upon the disease.

(*d*) *Robustness.*—Men with simple tachycardia have an index of build of 29.92, which is 1.15 below the average index of build of recruits. Pignet's index is 24.50. It places such men among the worst of the groups with medium constitution. It appears, then, that men with simple tachycardia have inferior constitution. For each inch of the average height there are 2.03 pounds of weight, as compared with the normal 2.097, and 0.484 inch of chest measurement (expiration), as compared with the normal 0.492.

9. CARDIAC HYPERTROPHY.

(*a*) *Stature.*—An enlargement of the heart sufficient to warrant recording was found among the first million men at mobilization camps in 503 cases, the average stature being 67.68 inches, or 0.19 inch above the average of the stature of the first million men. For the 840 cases found among the second million the average stature is 67.79, and for the two groups, 1,343 men, 67.75, or 0.26 inch above the mean of the whole first million men. The excess in stature of men with cardiac hypertrophy is a little less than twice the probable error of the standard deviation of the height of the population and is possibly significant. It indicates that men of large stature had enlarged hearts, probably in part because the larger bodies throw more work upon the heart, which has to enlarge to meet the functional demand made upon it. At least it is probable that one class of cases of enlarged hearts belong to this category. The standard deviation of men with enlarged hearts of the first million is 2.86; among men of the second million it is 2.64; and for both groups together 2.73 ± 0.04. The standard deviation of stature in the cases of cardiac hypertrophy is thus 0.02 inch more than the average for the whole of the first million men. The mode has moved to a higher level than found in the whole population, yet the distribution around this mode is typical of the whole population. The details of distribution of statures of men with cardiac hypertrophy are given in Table 155.

The relation between the distribution of stature in the population with cardiac hypertrophy and of drafted men in general is shown graphically in Plate XXXIII. It appears at once that men with cardiac hypertrophy are a taller group than that of the general population. This is shown by the deficiency of short men and the excess of tall men, especially of men from 69 to 74 inches. It is shown also by the fact that the mode is one-half inch above the average.

(*b*) *Weight.*—Of the 503 men found with cardiac hypertrophy among the first million examined at mobilization camps, the average weight is 139.23 pounds, or 2.31 pounds less than the mean weight of the whole of the first million men. The mean weight of 840 men with enlarged hearts found in the second million is 141.24, and of both lots, 1,343 men, 140.49. This is about 1 pound less than the average weight of the whole of the first million men.

TABLE 155.—*Correlation between height and weight in recruits with cardiac hypertrophy, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																											
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224
58 and under	1							1																					
59	7				1		1	1	1	1	1		1																
60	2						1			1																			
61	6						1	2					1				1				1								
62	14				1	1	1	1	2	4		2		1		1													
63	42				2	2	3	4	6	10	2	6	5	1	1														
64	74					1	7	12	15	12	6	7		3	4	2		1			1			1	1		1		
65	129					2	11	8	10	22	23	15	16	10	3	4	5												
66	164				3	4	3	9	22	24	25	28	17	11	5	5	3	2	2		1								
67	177					1	4	6	15	23	29	23	20	15	13	12	5	4	4	1	2								
68	199						1	5	14	25	21	35	27	22	14	9	8	6	3	5	2						1	1	
69	167						1	3	13	17	18	24	22	24	14	7	11	7	2	2					1				1
70	161					1		1	2	8	17	20	26	25	17	14	11	4	7	3	1	2		1		1			
71	93									2	8	15	14	13	9	11	7	5	3	2	2		2						
72	60									3	6	5	5	8	7	8	4	8	2			3	1						
73	28									1	1	2	3	5	7	4	1	1	1			1			1				
74	9								1				1	1		1	1	2	1	1									
75	6												1	1	1		2	1											
76	2															1		1											
77	1															1													
78	1																1												
Total	1,343				7	12	34	53	101	153	157	182	159	140	95	80	60	42	25	14	10	6	3	2	3	1	2	1	1

P_1—
Number of cases: 503.
Height: Mean, 67.68 inches; standard deviation, 2.86±0.06 inches.
Weight: Mean, 139.23 pounds; standard deviation, 16.75±0.36 pounds.
Correlation: 0.4576±0.0238.

P_2—
Number of cases: 840.
Height: Mean, 67.79 inches; standard deviation, 2.64±0.04 inches.
Weight: Mean, 141.24 pounds; standard deviation, 16.86±0.05 pounds.
Correlation: 0.4044±0.0195.

P_1 and P_2—
Number of cases: 1,343.
Height: Mean, 67.75 inches; standard deviation, 2.73±0.04 inches.
Weight: Mean, 140.49 pounds; standard deviation, 16.85±0.22 pounds.
Correlation: 0.4252±0.0151.

TABLE 156.—*Correlation between height and chest circumference (expiration) in recruits with cardiac hypertrophy, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	1						1										
59	7		1		2	2	1	1									
60	2				1	1											
61	6				2		3			1							
62	14			3	2	3	3	3									
63	42	1	3	3	9	9	10	2	2	2	1						
64	74		4	9	21	12	7	14	3	2			1			1	
65	129		8	9	16	31	25	18	15	5	1			1			
66	163	5	2	15	25	38	28	24	14	7	4	1					
67	176		3	14	28	29	36	27	23	9	5	1		1			
68	200		3	17	21	33	46	32	25	11	7		4			1	
69	167		6	7	21	33	38	29	17	10	4		1	1			
70	159	1		6	19	21	35	36	18	17	5	1					
71	93			2	9	19	19	22	10	6	4	1	1				
72	60		1	2	3	11	13	12	6	7	3	1					1
73	27			2	2	4	7	6	2	3		1					
74	9		1	1			1	3	2				1				
75	6			1		1	3	1									
76	2					1			1								
77	1							1									
78	1							1									
Total	1,339	7	32	91	181	248	276	232	138	80	34	6	8	3		2	1

P_1—Number of cases: 500.
Height: Mean, 67.67 inches; standard deviation, 2.87 ± 0.06 inches.
Chest circumference (expiration): Mean, 32.88 inches; standard deviation, 2.02 ± 0.04 inches.
Correlation: 0.2633 ± 0.0281.

P_2—Number of cases: 839.
Height: Mean, 67.79 inches; standard deviation, 2.63 ± 0.04 inches.
Chest circumference (expiration): Mean, 33.03 inches; standard deviation, 1.99 ± 0.03 inches.
Correlation: 0.1487 ± 0.0228.

P_1 and P_2—Number of cases: 1,339.
Height: Mean, 67.75 inches; standard deviation, 2.72 ± 0.04 inches.
Chest circumference (expiration): Mean, 32.97 inches; standard deviation, 2.00 ± 0.03 inches.
Correlation: 0.1948 ± 0.0177.

These men, then, are taller than the average and of slightly less weight. Their index of build is 30.61, as contrasted with 31.07, which is the index of robustness of the whole of the first million men. In other words, men with cardiac hypertrophy are prevailingly tall and slender. The standard deviation of the weight for the first million is 16.75 pounds, or about 0.67 less than the standard deviation in weight of the whole population of the first million men. For cases of cardiac hypertrophy among the second million the standard deviation in weight is 16.86, and for the two groups together it is 16.85 ± 0.22. This is a standard deviation of 0.57 pound less than the average for the whole first million. It appears that men with cardiac hypertrophy are not only a slender group, but that they are less variable about this lower weight mode than the population in general. This suggests that either slender men are most apt on this account to have hypertrophied hearts or else, more probably, that the conditions which have led to enlarged hearts in these tall men have resulted in an abnormal diminution in weight.

The relation between the distribution of weights of the population found with cardiac hypertrophy and the population of recruits in general is shown in Plate XXXVI. On the whole this population is characterized by less than average weight and this despite the fact that the population contains more tall persons than the population at large. The principal mode is the same as for the population at large.

(*c*) *Chest circumference.*—Of the 500 men found with cardiac hypertrophy among the first million men examined at mobilization camps the average chest circumference is 32.88 inches, or 0.34 below the mean chest circumference of the first million men. For 839 men in the second million the chest circumference is 33.03. For 1,339 men in the two groups it is 32.97, or 0.25 below the mean chest circumference of the whole of the first million men. This low chest circumference is associated with low weight and confirms the conclusion that men with hypertrophied hearts are tall and slender people. The standard deviation of chest circumference is for men with enlarged hearts, among the first million, 2.02; among the second million, 1.99; and for both together, 2 ± 0.03. This is very close to the standard deviation of the whole of the first million men and suggests that while the mean chest circumference is low yet the variations around this mode are those typical of the whole population. This result leads to the conclusion that the hypertrophied heart has caused a symmetrical reduction in chest circumference and weight in that part of the population which has been affected.

The relation between the distribution of chest girth in the population found with cardiac hypertrophy and the population of recruits in general is shown graphically in Plate XXXVII. It is obvious that the population with cardiac hypertrophy has on the whole a smaller chest circumference than the population in general and this is probably associated with the reduced weight which they show, probably as a consequence of the defect.

(*d*) *Robustness.*—Men with cardiac hypertrophy have an index of build of 30.61, or 0.46 below the average for the United States. Pignet's index is 22.66. Thus they are placed in the group with medium constitution. For each inch of average height there are 2.07 pounds of weight, as compared with the normal 2.097, and 0.487 inch of chest measurement (expiration), as compared with the normal 0.492.

10. MITRAL INSUFFICIENCY.

(*a*) *Stature*.—The average stature of 4,257 men found to have mitral insufficiency at mobilization camps out of the first million examined is 67.86 inches, or 0.37 inch above the mean stature of the first million men. The mean stature of 4,603 cases with mitral insufficiency out of the second million men is 67.82 inches; for both groups, 8,860 men, it is 67.84 inches, or 0.35 inch above the mean stature. It is clear that mitral insufficiency is found especially in tall men. If we examine the distribution of endocarditis and valvular diseases of the heart as given in "Defects Found in Drafted Men" [9] (p. 133), we find that the highest rate occurs in the States of Washington, Utah, Michigan, Maryland, and others, including several States with exceptionally tall men. However, in Texas, in which the average stature is exceptionally high, the ratio of valvular diseases found is below the average. The standard deviation of stature of men found with mitral insufficiency out of the first million is 2.73; out of the second million, and for the combined group, it is the same. This standard deviation is not significantly different from that of the population at large. Thus the men with mitral insufficiency constitute a group with a high mode but with essentially the same distribution about that mode as a normal population. The causes then which have lifted the mode have acted similarly and in essentially uniform fashion upon "the run" of the population.

The relation between the distribution of stature in the population with mitral insufficiency and of drafted men in general is shown in Plate XXXIII. Here, as in cardiac hypertrophy, it is obvious that men with mitral insufficiency constitute a group of tall persons. This is shown by the regular deficiency of men below the mode in stature, by the regular excess of men above the mode and by the fact that the mode is ½ inch above the modal stature of the population of drafted men.

(*b*) *Weight*.—The mean weight of 4,257 men found to have mitral insufficiency in mobilization camps of the first million examined is 139.11; in 4,603 from the second million, 138.87. The average of the total 8,860 cases is 138.99, which is 2.55 pounds below the mean weight for the whole population of the first million. This places men with mitral insufficiency below the average of the population. The index of build of men with mitral insufficiency is 30.20, which is decidedly less than that of the average for the whole first million men, 31.07. It appears then that men with mitral insufficiency are on the average tall and slender men, the same type of men we have seen to be affected with cardiac hypertrophy. Cardiac hypertrophy and mitral insufficiency are in a way correlated, for if the valves of the heart are inadequate then the muscles of the heart must make good the deficiency and this hyperactivity leads to increase in size of the muscles of the heart. The hydrostatic problem that the heart has to meet is increased by the increase in stature of the man.

The relation between the distribution of weights in the population found with mitral insufficiency and the population of recruits in general is shown in Plate XXXVI. This graph shows a small but constant inferiority in weight of persons found with mitral insufficiency and this despite the fact that they

TABLE 157.—*Correlation between height and weight in recruits with mitral insufficiency, first* (P_1) *and second* (P_2) *million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																												
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229
58 and under	8			1		1		1			2	1		1	1															
59	9				1				2		1	2		3																
60	30			1		5	1	5	1	3	5	2	2			4	1													
61	52			2	3	3	11	9	7	4	3	1	1	3	1	2		1						1						
62	115			1	3	9	18	15	23	11	7	11	9	2	1	1	1	1		1				1						
63	276			1	8	17	38	55	43	32	29	20	12	9	9		3													
64	459			1	8	15	39	61	76	86	61	42	27	13	14	5	7	1	1				1	1						
65	732			1	8	14	46	107	102	110	96	85	56	46	30	12	6	4	4	3			1	1						
66	1,034				5	17	48	78	153	164	167	142	96	54	46	22	18	9	3	4	3	3	1	1						
67	1,244				3	14	35	76	143	157	206	181	148	92	79	38	32	15	10	4	5	1	1	3	1					
68	1,380				5	13	22	58	111	138	191	228	198	131	105	67	47	34	20	4	3	3	2							
69	1,140					1	11	29	68	113	139	154	164	142	111	72	47	31	19	13	9	6	4	3	4					
70	984					1	4	18	33	53	107	123	128	134	122	91	70	35	25	17	6	8	3	2	3	1				
71	620					2		11	10	34	35	71	85	99	80	73	44	33	17	9	7	2	4	1			1	2		
72	399								5	11	22	38	45	60	46	49	40	34	15	12	5	7	1	2	5				2	
73	205								1	6	8	18	25	21	23	30	18	15	16	8	6	2	3	1	2	1			1	
74	101										3	3	7	13	14	9	15	10	13		7	2		1	4					
75	44									1		4	2	5	3	3	3	5	5	5		1	1	2	2	1				1
76	19										1	1	1	1		6	2	1	3	1	1	1								
77	4																1	1	1						1					
78	5												2	1	1		1													
Total	8,860			8	44	112	273	523	778	923	1,083	1,127	1,008	830	686	484	356	230	152	81	52	36	22	20	22	3	1	2	3	1

P_1—
Number of cases: 4,257.
Height: Mean, 67.86 inches; standard deviation, 2.73±0.02 inches.
Weight: Mean, 139.11 pounds; standard deviation, 16.62±0.12 pounds.
Correlation: 0.4860±0.0079.

P_2—
Number of cases: 4,603.
Height: Mean, 67.82 inches; standard deviation, 2.73±0.02 inches.
Weight: Mean, 138.87 pounds; standard deviation, 16.94±0.12 pounds.
Correlation: 0.5029±0.0074.

P_1 and P_2—
Number of cases: 8,860.
Height: Mean, 67.84 inches; standard deviation, 2.73±0.01 inches.
Weight: Mean, 138.99 pounds; standard deviation, 16.79±0.09 pounds.
Correlation: 0.4949±0.0054.

TABLE 158.—*Correlation between height and chest circumference (expiration) in recruits with mitral insufficiency, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	8		2		2	2		1		1							
59	9		1	1	1	1	2		3								
60	29		3	6	4	2	3	5	2	4							
61	51	4	2	11	12	7	10	3	2								
62	115	2	11	16	14	25	24	10	4	3	3	1	2				
63	275	4	25	37	55	57	50	23	11	6	4	2	1				
64	459	6	31	54	105	92	71	46	42	7	3		2				
65	730	4	42	95	101	177	143	89	37	25	11	6					
66	1,032	5	51	109	188	229	199	118	80	32	12	6	2	1			
67	1,238	5	45	113	200	272	233	169	106	57	24	9		2	1	1	1
68	1,376	13	35	110	184	293	272	214	147	71	22	7	7				1
69	1,137	3	24	87	156	222	231	194	98	66	36	16	4				
70	978	1	21	47	115	184	209	164	110	73	37	13	4				
71	619	6	10	26	65	120	118	127	76	42	15	9	2	1	1		1
72	398	3	3	12	41	64	79	87	55	35	9	5	5				
73	205		2	6	17	36	40	39	25	20	12	4	3	1			
74	100		2	2	8	10	18	26	15	13	4	2					
75	43			1	3	6	7	9	6	2	4	3	1				1
76	19	1				1	2	8	3	2	2						
77	4						1	1	1		1						
78	5					1	1	3									
Total	8,830	57	310	733	1,271	1,801	1,713	1,336	823	459	199	83	33	5	2	1	4

P_1—
Number of cases: 4,240.
Height: Mean, 67.86 inches; standard deviation, 2.73±0.02 inches.
Chest circumference (expiration): Mean, 32.86 inches; standard deviation, 1.94±0.01 inches.
Correlation: 0.1972±0.0100.

P_2—
Number of cases: 4,590.
Height: Mean, 67.82 inches; standard deviation, 2.73±0.02 inches.
Chest circumference (expiration): Mean, 32.65 inches; standard deviation, 2.05±0.01 inches.
Correlation: 0.2886±0.0091.

P_1 and P_2—
Number of cases: 8,830.
Height: Mean, 67.84 inches; standard deviation, 2.73±0.01 inches.
Chest circumference (expiration): Mean, 32.75 inches; standard deviation, 2.00±0.01 inches.
Correlation: 0.2338±0.0068.

are men on the whole of a stature above the average. This result indicates that the population with mitral insufficiency is undernourished, probably in consequence of the valvular defect.

(*c*) *Chest circumference.*—The average chest circumference of 4,240 men found with mitral insufficiency in the first million is 32.86, and in 4,590 men in the second million 32.65. The average for the 8,830 in both groups is 32.75, which is 0.47 inch less than the average chest circumference. This small chest circumference is associated with the slender build which is, as we have seen, characteristic of the group with mitral insufficiency. The standard deviation of chest circumference for the combined groups is 2.0, which is essentially the same as that of the whole population. It appears then that, so far as chest circumference goes, if the mode has been diminished, the distribution about the mode is about the same as the mode of the whole population. It seems probable, therefore, that tall and short persons are affected in equal degree, so that the reduction in chest circumference of that part of the population with mitral insufficiency has affected them in equal proportion.

The relation between the distribution of chest girth in the population found with mitral insufficiency and the population of recruits in general is shown graphically in Plate XXXVIII. It appears at once that the population with mitral insufficiency has a chest girth strikingly below that of the population in general—a fact which is associated with their low average weight, despite the high average stature. This result is therefore probably due to malnutrition in consequence of the disease.

(*d*) *Robustness.*—Men with mitral insufficiency have an index of build of 30.20, or 0.87 below the average for the United States. Pignet's index is 24.12. Thus they fall into the group with medium constitution. For each inch of the average height there are 2.05 pounds of weight, as compared with the normal 2.097, and 0.483 inch of chest measurement (expiration), as compared with the normal 0.492.

11. MITRAL STENOSIS.

(*a*) *Stature.*—Of 1,521, in the first million men, affected with mitral stenosis, the mean height is 67.71 inches, which is 0.22 inch above the average stature for the first million men. The mean stature for 991 men in the second million, 67.50, is somewhat less than for the first million. For the 2,512 men in the two groups it is 67.63 inches, or 0.14 inch above the average. The standard deviation of stature of men with mitral stenosis is 2.72 for the first million, and 2.73 for the second, and 2.72 ± 0.03 for the two groups, which is about the same as the standard deviation of the whole population of the first million given in Table I.

The relation between the distribution of stature in the population with mitral stenosis and that of drafted men in general is shown in Plate XXXIII. This graph indicates that the population with mitral stenosis contains on the whole a slightly greater stature than the population of drafted men in general. However, the contrast is much less than the case of either mitral insufficiency or cardiac hypertrophy. The mode for the population with mitral stenosis is the same as that of the drafted men in general.

(*b*) *Weight.*—The weight of 1,521 men with mitral stenosis among the first million is 137.46; and for the 991 men among the second million, 135.93; and for the 2,512 in both groups, 136.85 pounds, which is 4.69 pounds below the average of the first million men. The standard deviation is extraordinarily low, being 15.24 for the first million men; 16.16 for the second million; and 15.63 ± 0.15 for the two groups, which is strikingly below the standard deviation for the population in general. This means that tall, slender men are prevailingly affected with mitral stenosis. The reduced weight is not merely a consequence of the mitral stenosis, for if it were the standard deviation would be large. Rather the men with mitral stenosis are a selected lot of the population characterized by their tall and slender form.

The relation between the distribution of weights in the population found with mitral stenosis and that of the population of recruits in general is shown in Plate XXXVI. This graph shows clearly that the population with mitral stenosis is inferior in weight on the average to the population in general and this despite the fact that they are on the average slightly taller than the population of recruits in general. This reduction in weight is therefore probably due to imperfect development resulting from the disease.

(*c*) *Chest circumference.*—Of the 1,516 men found with mitral stenosis at mobilization camps among the first million men, the average chest circumference is 32.77 inches, which is 0.45 inch less than the average of the whole population, and of the 991 men found in the second million the average chest circumference is 32.47. Of 2,507 men in the two groups together the average is 32.65, which is 0.57 inch less than the average for the first million as shown in Table I. This small chest circumference accords with the evidence derived from weight that men with mitral stenosis are tall and slender.

The standard deviation of chest circumference is 1.89 for the two groups, which is 0.12 less than the standard deviation of the chest circumference of the population of Table II. This accords also with the small standard deviation for weight and suggests the conclusion that men with mitral stenosis are not a random sample of the population, but are (in part) a selected group, characterized by tall stature, small weight, and narrow chest circumference, and that their peculiarities are associated constitutionally, to at least a certain extent, with a diseased or defective condition of the valves.

(*d*) *Robustness.*—Men with mitral stenosis have an index of build of 29.93, or 1.14 below the average of the United States. This is the lowest index of build of the groups with heart defects excepting the group with simple tachycardia. Pignet's index of robustness is 24.81, which places it in the lower part of the medium group. For each inch of the average height there are 2.02 pounds of weight, as compared with the normal 2.097, and 0.483 inch of chest measurement (expiration), as compared with the normal 0.492.

TABLE 159.—*Correlation between height and weight in recruits with mitral stenosis, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																							
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	199–194	195–199	200–204
58 and under	4			1				1			1	1													
59	7					1	1			1			2	2											
60	8				1	1		1	2	1	2														
61	16				2		3	5	1	1				3	1										
62	43					2	5	10	13	2	6		1	2	1	1									
63	85			1	3	7	6	25	18	10	6	3	4		1				1						
64	140				1	7	13	24	15	31	18	13	10	2		3	1		1	1					
65	212				3	6	12	17	33	37	34	34	16	9	5	2	2	1		1					
66	320				2	4	10	29	40	63	50	52	32	14	16	3	2		3						
67	367				1	2	10	27	49	48	70	49	40	25	15	9	5	10	3	1	2		1		
68	369				2	4	8	19	38	41	55	50	47	33	29	21	9	9	2	1	1				
69	321					1	2	8	19	36	45	59	38	39	33	16	14	2	4	3	2				
70	262				2		3	2	11	21	26	50	45	33	27	13	10	4	11	1			1	1	1
71	186						1		7	3	17	24	21	21	25	21	14	18	4	4		4		1	1
72	91							1	1	6	5	14	9	13	12	9	7	3	3	2	2	4			
73	53								1	3	3	4	4	12	5	4	6	6	3	2					
74	18										1	1			3	1		6	2	1	1	1	1		
75	4												1		1					2					
76	1																								1
77	1																1								
78	2												1		1										
79	2														2										
Total	2,512			2	17	35	74	169	248	304	339	354	271	208	177	103	71	59	37	19	8	9	3	2	3

P_1—
Number of cases: 1,521.
Height: Mean, 67.71 inches; standard deviation, 2.72±0.03 inches.
Weight: Mean, 137.46 pounds; standard deviation, 15.24±0.19 pounds.
Correlation: 0.4831±0.0133.

P_2—
Number of cases: 991.
Height: Mean, 67.50 inches; standard deviation, 2.73±0.04 inches.
Weight: Mean, 135.93 pounds; standard deviation, 16.16±0.24 pounds.
Correlation: 0.5105±0.0158.

P_1 and P_2—
Number of cases: 2,512.
Height: Mean, 67.63 inches; standard deviation, 2.72±0.03 inches.
Weight: Mean, 136.85 pounds; standard deviation, 15.63±0.15 pounds.
Correlation: 0.4951±0.0102.

TABLE 160.—*Correlation between height and chest circumference (expiration) in recruits with mitral stenosis, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
58 and under	4	1			1	1			1							
59	7				2		2	2		1						
60	8		1	2	3		1		1							
61	16		5	1	4	1	2	2		1						
62	43		4	6	9	10	5	7		2						
63	85	2	9	12	22	23	8	8		1						
64	140		8	16	25	34	24	24	7		1	1				
65	211	2	9	18	41	47	43	29	12	7	2	1				
66	320	2	13	24	63	81	64	41	20	6	4	2				
67	367	4	16	31	60	79	60	62	32	16	3	2	2			
68	368	1	9	28	46	81	79	65	37	17	3	1	1			
69	321	1	8	24	43	61	84	42	36	16	4	2				
70	260	1	10	11	36	55	45	51	27	18	2	4				
71	186			7	24	26	41	28	28	16	11	5				
72	91		1	2	12	17	21	16	8	9	2	2	1			
73	52		1	3	6	8	8	10	9	6	1					
74	18		1			1	3	3	6	3	1					
75	4				1		2			1						
76	1				1											
77	1					1										
78	2					2										
79	2			1			1									
Total	2,507	14	95	186	399	528	493	390	224	120	34	20	4			

P_1—
Number of cases: 1,516.
Height: Mean, 67.71 inches; standard deviation, 2.72±0.03 inch.
Chest circumference (expiration): Mean, 32.77 inches; standard deviation, 1.83±0.02 inch.
Correlation: 0.2109±0.0166.

P_2—
Number of cases: 991.
Height: Mean, 67.50 inches; standard deviation, 2.73±0.04 inch.
Chest circumference (expiration): Mean, 32.47 inches; standard deviation, 1.95±0.03 inch.
Correlation: 0.2589±0.0200.

P_1 and P_2—
Number of cases: 2,507.
Height: Mean, 67.62 inches; standard deviation, 2.72±0.03 inch.
Chest circumference (expiration): Mean, 32.65 inches; standard deviation, 1.89±0.02 inch.
Correlation: 0.2326±0.0127.

12. VALVULAR DISEASES OF THE HEART (UNCLASSIFIED).

(*a*) *Stature.*—The mean stature of men found at mobilization camps, in the 3,419 men in the first and second million draft recruits, with unclassified valvular disease of the heart, is 67.60 inches, or 0.11 inch greater than the population in Table I. The standard deviation of the height of these men with unclassified valvular diseases of the heart is 2.67, which is practically the same as the variability of the whole population as shown in Table I.

The relation of distribution of statures in the population with valvular diseases of the heart as compared with the whole population of drafted men is shown in the graph on Plate XXXII. While the two curves of distribution are intertwined to a considerable extent, yet it is clear that there are certain elements of the population with valvular diseases of the heart that are above average stature. Thus there is a clear excess of such diseases in men 69 to 72 inches tall. However, the mode in the population with valvular diseases of the heart lies at 67 inches, or ½ inch below that of the population of drafted men in general.

(*b*) *Weight.*—Of 909 men found with unclassified valvular diseases of the heart among the first million at mobilization camps, the average weight is 138.49 pounds, or 3.05 pounds below the average of the population in Table I; for the 2,510 in the second million it is 136.78; and for 3,419 men in both groups 137.24, being 4.30 pounds below the mean weight for the first million men. The standard deviation in weight for the first million is 16.49 pounds, or 0.93 pound below the standard deviation of the population in Table I; for the second million it is 17.40; for the two combined it is 17.35 ± 0.14. This is less than the standard deviation for the whole of the first million as given in Table I, but as the difference is only equal to one-half of the probable error it is probably not very significant.

The relation between the distribution of weights in the population with unclassified valvular diseases of the heart and the population of recruits in general is shown graphically in Plate XXXV. It appears at once that the affected population has a weight clearly below the average and this despite the fact that the statures are practically the same as the average. We have, therefore, evidence of a lack of nutrition in the population with unclassified valvular diseases of the heart, no doubt partly due to the disease itself.

(*c*) *Chest circumference.*—Of 906 men found with unclassified valvular diseases of the heart among the first million at mobilization camps, the average chest circumference is 32.77 inches, or 0.45 inch less than the population in Table II; for the 2,500 such men found in the second million the chest circumference is 32.49 inches; and for the 3,406 men in both groups combined it is 32.56, which is 0.66 less than the mean chest circumference of the average for the first million men. The standard deviation of chest circumference of those in the first million men is 1.88, or 0.13 below the standard deviation of the whole population in Table II; for the second million it is 2.01 ± 0.02; and for the two groups combined 1.98 ± 0.02.

From these measurements we find that men with unclassified valvular diseases of the heart are tall men with smaller chest circumference and with somewhat less variability than the population as a whole.

TABLE 161.—*Correlation between height and weight in recruits with valvular disease of heart (unclassified), first (P_1) and second (P_2) million draft recruits.*

Height in inches.	Total.	Weight, in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229	230–234	335 and over.
58 and under	3				1	1								1																		
59	8							1	1	2	1	1		1		1																
60	15				2		4	3	1	1	1	1	1				1															
61	21					2	6	1	5	2	1	3	1																			
62	46		1	1		4	7	8	4	7	4	6	1	1		1		1														
63	104				4	5	13	14	17	16	12	11	4	3	4		1															
64	189			1	7	8	23	35	31	27	20	15	10	3	2	3	3		1													
65	349			1	3	11	30	51	66	63	38	23	23	11	14	6	2	2	2	1	1	1										
66	414				2	6	28	44	50	65	66	45	34	20	22	13	9	1	4	2	3											
67	517				2	8	20	35	68	77	85	49	63	47	29	13	6	5	3	2	1	1	2									1
68	488					4	12	31	39	59	66	67	65	51	35	19	9	12	6	5	3	1	2					1	1			
69	442					3	6	12	21	35	56	64	61	56	38	29	20	10	12	8	3	3			5							
70	351						1	12	12	18	37	57	54	45	34	20	16	9	12	9	7	2		1	2			1	1		1	
71	238							2	5	13	25	37	32	32	24	22	16	9	9	3	2		1	1	2	1	1					1
72	139							2	4	8	11	13	17	20	16	19	9	12	4	3	1											
73	57						1		2	2	2	2	8	4	10	10	6	4	3	2	1											
74	25											1	4	3	3	3	3	2	2	3	1											
75	6												1	1	1	1		1			1											
76	4									1			1				1	1														
77	1														1																	
78	2													1							1											
Total	3,419	......	1	3	21	52	151	251	326	396	425	395	380	300	233	160	102	69	58	38	25	8	5	2	9	1	1	2	2	....	1	2

P_1—
Number of cases: 909.
Height: Mean, 67.53 inches; standard deviation, 2.67±0.04 inch.
Weight: Mean, 138.49 pounds; standard deviation, 16.49±0.26 pound.
Correlation: 0.5023±0.0167.

P_2—
Number of cases: 2,510.
Height: Mean, 67.63 inches; standard deviation, 2.67±0.03 inch.
Weight: Mean, 136.78 pounds; standard deviation, 17.40±0.17 pound.
Correlation: 0.4459±0.0108.

P_1 and P_2—
Number of cases: 3,419.
Height: Mean, 67.60 inches; standard deviation, 2.67±0.02 inch.
Weight: Mean, 137.24 pounds; standard deviation, 17.35±0.14 pound.
Correlation: 0.4546±0.0092.

TABLE 162.—*Correlation between height and chest circumference (expiration) in recruits with valvular disease of heart (unclassified), first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	3			1		2											
59	8					1	4	2	1								
60	15			4	2	6	2	1									
61	21			2	5	8	2	1	2	1							
62	46		4	7	10	8	12	3	1			1					
63	104	2	10	6	22	26	16	12	6	3	1						
64	189	7	15	26	38	32	32	24	8	7							
65	347	4	20	53	73	75	55	34	17	10	6						
66	413	2	20	51	73	78	90	49	23	16	6	3	2				
67	514	8	15	62	93	116	89	67	39	17	5	1		1			1
68	486	3	9	48	88	86	97	68	45	27	10	3	1			1	
69	440	3	13	26	67	76	94	71	49	22	12	3	3	1			
70	350	2	4	22	38	81	78	55	31	16	11	6	5	1			
71	237	2	5	10	28	54	45	40	30	11	6	3	3				
72	139	1	1	10	12	26	28	31	16	9	4				1		
73	56	2	1		5	7	15	13	9	2	2						
74	25			2	3	2	5	4	8	1							
75	6			1	1		3		1								
76	4		1			1	1	1									
77	1					1											
78	2					1		1									
Total	3,406	36	118	331	558	687	668	477	286	142	63	20	14	3	1	1	1

P_1—
Number of cases: 906.
Height: Mean, 67.53 inches; standard deviation, 2.67±0.04 inch.
Chest circumference (expiration): Mean, 32.77 inches; standard deviation, 1.88±0.03 inch.
Correlation: 0.2445±0.0211.

P_2—
Number of cases: 2,500.
Height: Mean, 67.63 inches; standard deviation, 2.67±0.03 inch.
Chest circumference (expiration): Mean, 32.49 inches; standard deviation, 2.01±0.02 inch.
Correlation: 0.1896±0.0130.

P_1 and P_2—
Number of cases: 3,406.
Height: Mean, 67.60 inches; standard deviation, 2.67±0.02 inch.
Chest circumference (expiration): Mean, 32.56 inches; standard deviation, 1.98±0.02 inch.
Correlation: 0.2020±0.0111.

Thus in the four categories of heart defects—cardiac hypertrophy, mitral insufficiency, mitral stenosis, and unclassified valvular diseases of the heart—we see that the stature of the affected population is clearly in excess of the average of the whole population. What is the significance of this excess of persons showing valvular diseases of the heart? The first suggestion that occurs to one is that the heart as a pump has to raise fluid about 2 feet above its own level and has to force it through a complicated system of capillaries that occurs in all parts of the body. The taller the individual the more work does the heart have to do and the more back pressure there is upon the valves, both in carrying the fluid to a higher level and in forcing it through a greater number of capillaries. Because of the extra work involved in pumping the blood in persons of large stature, when the muscles or valves of the heart become diseased or crippled as the result of any cause, then the valves or the muscles may become insufficient and show organic disturbance, sooner than in shorter men.

The relation between the distribution of chest girths in men found with unclassified valvular diseases of the heart and in recruits in general is shown graphically in Plate XXXVIII. This graph shows strikingly the abnormally small chest girth of the populations found with unclassified valvular diseases of the heart. This result is associated with the low average weight in this part of the population, despite their average stature. The resulting slender build is no doubt largely the effect of malnutrition consequent upon the disease.

(*d*) *Robustness.*—Men with unclassified valvular diseases of the heart have an index build of 30.04, or 1.03 below the average of the United States. Pignet's index is 24.78, which places them in the group with medium constitution. For each inch of the average height there are 2.03 pounds of weight, as compared with the average 2.097, and 0.482 inches of chest measurement (expiration), as compared with the normal 0.492.

13. VARICOSE VEINS AND VARICOCELE.

(*a*) *Stature.*—The average stature of men found at mobilization camps, among 1,409 men in the first million, is 68.34 inches, with varicose veins, which is 0.85 inch above the average of the first million men, as indicated in Table I. The average stature of 2,014 men with this defect found among the second million is 68.49; and for the 3,423 men in the two groups is 68.43, or 0.94 inch above the average height of the whole population. The standard deviation of stature of men with varicose veins among the first million is 2.70; among the second million, 2.77; and among the two groups combined, 2.74 ± 0.02 inches. This is essentially the same as the variability of the statures of the whole population as shown in Table I.

The average stature of 3,453 men among the first million at mobilization camps with varicocele is 68.32 inches, which is 0.83 inch above the average stature of the population in Table I. For the 2,396 men in the second million the average stature is 68.44, and for the 5,849 men in the two groups together 68.37, which is 0.88 inch above the mean stature of the whole population. The standard deviation of the mean stature of men with varicocele among the first million is 2.78; among the second million, 2.71; and for the two groups together, 2.75 ± 0.02 inches, which is somewhat higher than the average for the whole population, but not significantly so. What is clear in the stature of men having the two defects mentioned is that they are strikingly tall.

The relation between the distribution of stature of the population with varicose veins and the population of recruits in general is shown graphically in Plate XXXII. It appears at once that the population with varicose veins is characterized by great stature. There is a marked deficiency of men below modal stature and a marked excess of men above. The modal stature for the population with varicose veins is at 68 inches, or 0.5 inch above the population of drafted men in general. As in the case of hemorrhoids, so here the mode has a relatively high frequency, indicating relatively small variability in the population with varicose veins and enforcing the conclusion that men with varicose veins are those afflicted primarily because of their tall stature.

The relation between the distribution of statures of men with varicocele as compared with the population of recruits in general is shown graphically in Plate XXXII. Here we see, as in the case of the population with varicose veins, that the population is one of tall men. There is a marked deficiency of men with stature below the average and a marked excess of men with stature above the average. Also the mode is at 68 inches, or 0.5 inch above that of recruits in general, and the fact that it is strikingly higher than the mode of recruits in general indicates a relatively small variability in stature of men with varicocele and enforces the conclusion that men with this defect are affected primarily because of their great stature.

(*b*) *Weight.*—In 1,409 men found with varicose veins among the first million at mobilization camps the average weight is 146.43 pounds, or 4.89 above the average of the population of Table II. For the 2,014 among the second million the average weight is 146.45, and for the 3,423 men in both lots it is 146.44, or 4.90 above the mean weight of the whole population. This abnormally great weight is in part associated with the great height, nearly an inch above the average, found in these men. By comparing Table 163, showing the relation of stature to weight in men with varicose veins, with Table I, showing the relation of stature to weight among the whole of the first million men, it appears that men with varicose veins are heavy for their height. Thus the mean weight of men 68 inches tall in the whole population is 142.61 pounds, while the mean weight of men 68 inches tall who have varicose veins is 145.52 pounds, or 2.91 above the average of the whole population.

The standard deviation in weight of men found with varicose veins is for the first million 18.39, or 0.97 pounds above the standard deviation in weight of the population in Table I. For the second million the standard deviation in weight is 18.62, and for the two groups together, 18.53 ± 0.15. This is 1.11 pounds above the standard deviation and over seven times the probable error. It is with one exception the largest standard deviation found. This measures the remarkable variability in weight of men with varicose veins and suggests that this defect is found not merely in a particular stature-weight class, but that it is found in a considerable range of stature classes all of which comprise abnormally stout.

In 3,453 men found with varicocele among the first million examined at mobilization camps the average weight is 141.88 pounds, or 0.34 pound above the average of the population of Table I; for the 2,396 men in the second million the average weight is 141.55; and for the 5,849 in both groups combined it is

141.75, which is 0.26 pound above the average of the first million as shown in Table I. The standard deviation for varicocele in the first million men is 16.68 pounds, or 0.74 below that of the whole population. For varicocele in the second million the standard deviation is 16.18, and for both groups together it is $16.47 + 0.10$. This is 0.95 pound below the standard deviation of the average population of the first million, as shown in Table I. This low standard deviation is, therefore, in striking contrast with that of varicose veins, and indicates that men affected with varicocele constitute probably a special type and this special type includes exceptionally tall men, though only of average weight; hence men exceptionally tall and slender.

The relation between the distribution of weights in the population with varicose veins and in the population of recruits in general is shown graphically in Plate XXXV. It appears at once that the population with varicose veins is a heavy population, as it is also a tall population. Hence it appears that persons with varicose veins are prevailingly larger persons than the population in general.

The relation between the distribution of weight of persons with varicocele and of recruits in general is shown graphically also in Plate XXXV. It appears that on the whole the population with varicocele is slightly heavier than that of recruits in general, a result which is sufficiently accounted for by the clear excess in stature of the population with varicocele.

(c) *Chest circumference.*—In 1,412 men found among the first million men examined at mobilization camps with varicose veins the average chest circumference is 33.70 inches, or 0.48 inch above the average chest circumference of men of Table II; for 2,014 men in the second million the average chest circumference is 33.64, and for the 3,426 men in both groups together, 33.67. This is 0.45 inch above the average mean chest circumference, which is correlated with the great weight of men found with varicose veins. The standard deviation of chest circumference is for the first million 2.14, or 0.13 above the standard deviation of the population of Table II. For the second million and the two groups combined it is the same (2.14). Men with varicose veins are accordingly not only taller than the average, but have a greater chest circumference and are more variable in this respect than the average of the population, indicating that the defect is found not only in a particular chest circumference-stature class, but that it is found in a considerable range of height classes all of which have large chests just because they are abnormally stout.

Varicocele was found in 3,441 men among the first million examined at mobilization camps. In them the average chest circumference is 33.24 inches, or 0.02 above the average of the whole population of Table II. For the 2,395 men in the second million the average chest circumference is 32.79, and for the 5,835 men in both groups the average is 33.06, or 0.16 below the average for the first million as shown in Table II. The standard deviation of chest circumference of men of the first million is 1.95 inches, or 0.06 inch below the standard deviation of the whole population of Table II. For the cases of varicocele found among the second million the standard deviation in chest circumference is 1.95, and for the two groups together 1.97 ± 0.01. This is 0.04 inch below the standard deviation for the average of the first million as shown in Table II, and this difference is probably a significant one. Owing to the fact that men showing varicocele are taller than the average, the slight deficiency of chest circumference indicates that they are not stout, as is confirmed also by their weight. Their reduced variability suggests that the selected tall men having varicocele belong for the most part to a race of such men.

To sum up, it appears that both varicose veins and varicocele are associated with excess stature and that this result is probably primarily a hydrostatic one. The blood vessels of the lower part of the body have to support columns of fluid which are longer in taller men. It is to be expected that veins will give way more commonly where the hydrostatic pressure is greater than where it is less.

From the large size of the standard deviation of weight associated with varicose veins, it seems probable that varicose veins, though found prevailingly in heavy men, are found also in some slender men of very tall stature, and in some prevailingly short men of great weight, so that both weight and stature are concerned in the production of varicose veins. In the case of varicocele, on the other hand, the hypothesis seems to be favored that chiefly tall men, prevailingly of average or slightly less than average robustness, show the defect.

The relation between the distribution of chest girths in the population found with varicose veins and that of the population of recruits in general is shown graphically in Plate XXXVIII. Here there is a clear excess of persons with large chest circumference which is no doubt associated with the generally large size of persons with varicose veins and suggests that the defect has little influence on nutrition, or vice versa.

The relation between the distribution of chest girths in the population with varicocele and the population of recruits in general is also shown graphically in plate XXXVIII. It appears that there is no very important difference between the two populations, though there is a slight, but fairly constant, deficiency in chest girths in the population with varicocele, and this despite the fact that that population contains an excess of tall and heavy men. It appears then that the population with varicocele is characterized by slenderness of build.

(*d*) *Robustness.*—Men with varicose veins have an index of build of 31.28, or 0.21 unit above the average of the United States. Pignet's index is 19.90. This places them in the group with good constitutions.

Men with varicocele have an index of build of 30.33, or 0.74 unit below the average of the United States. Pignet's index is 23.43. This places them in the group with medium constitution. One notes then that men with varicocele are strikingly inferior in build and robustness to those with varicose veins.

For the men with varicose veins for each inch of the average height there are 2.14 pounds of weight, as compared with the normal 2.097, and 0.492 inch of chest measurement (expiration), as compared with the normal 0.492; while in men with varicocele the weight per inch is 2.07 pounds and the chest measurement 0.484 inch. Thus both sets of men are abnormally tall, but while those with varicose veins are of normal chest and overweight those with varicocele are small chested and underweight.

TABLE 163.—*Correlation between height and weight in recruits with varicose veins, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																												
		89 and under.	90-94	95-99	100-104	105-109	110-114	115-119	120-124	125-129	130-134	135-139	140-144	145-149	150-154	155-159	160-164	165-169	170-174	175-179	180-184	185-189	190-194	195-199	200-204	205-209	210-214	215-219	220-224	225-229	230-234
58 and under	1										1																				
59	3							2		1																					
60	6					1		1	3		1																				
61	20	1				1	4	1	4	3	1	2	1	1	1																
62	25						2	6	3	6	2	2	1	2			1														
63	51						3	8	5	12	7	4	2	4	3			1	1		1										
64	152	1		1		5	7	15	20	24	18	16	17	16	6	3	1	1				1									
65	219				2	3	8	14	25	34	32	29	21	11	17	5	5	3	3	3	2				1				1		
66	329			1	1	2	10	18	22	45	50	46	36	38	30	7	5	6	8			3			1						
67	425				1	2	5	10	22	43	43	55	61	66	35	30	18	15	6	5	6	2									
68	536						5	14	22	41	56	77	76	63	49	31	30	28	14	8	6	4	4	1	5	2					
69	475					1		7	15	31	52	46	69	70	46	44	32	23	12	8	6	3	5	1	3	1					
70	421							1	13	19	28	44	55	57	54	34	30	32	17	14	8	5	5	2	1	1		1			
71	312						1	3	2	4	14	26	41	49	28	38	23	23	19	19	8	4	1	2	5		1		1		
72	233									4	10	14	24	23	28	26	32	13	14	13	6	11	2	2	6	3	1	1			
73	107									3	2	2	10	8	6	15	24	10	9	4	2	3	2	2	2	1	1				1
74	60										3	2	6	7	6	8	5	2	3	6	4	2	2		4						
75	30								1				3	3	3		2	1	7	3	3	3				1					
76	13										2		2			1		1	2		1	1	2			1					
77	1																						1								
78	3																1	1					1								
79	1																						1								
Total	3,423	2		2	4	15	45	100	157	270	322	365	425	418	312	242	209	160	115	83	53	42	26	10	28	10	3	2	2		1

P_1—
Number of cases: 1,409.
Height: Mean, 68.34 inches; standard deviation, 2.70±0.03 inch.
Weight: Mean, 146.43 pounds; standard deviation, 18.39±0.23 pound.
Correlation: 0.4833±0.0138.

P_2—
Number of cases: 2,014.
Height: Mean, 68.49 inches; standard deviation, 2.77±0.03 inch.
Weight: Mean, 146.45 pounds; standard deviation, 18.62±0.20 pound.
Correlation: 0.4608±0.0118.

P_1 and P_2—
Number of cases: 3,423.
Height: Mean, 68.43 inches; standard deviation, 2.74±0.02 inch.
Weight: Mean, 146.44 pounds; standard deviation, 18.53±0.15 pound.
Correlation: 0.4696±0.0090.

TABLE 164.—*Correlation between height and chest circumference (expiration) in recruits with varicose veins, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	1								1								
59	3			1			1	1									
60	6			1	1	2		2									
61	20			3	4	2	1	2	5	2		1					
62	25		1	1	5	6	5	5	1			1					
63	51			8	7	8	8	6	10	3			1				
64	152	1	4	9	28	29	28	18	14	14	3	3	1				
65	219	3	2	14	31	40	38	34	25	15	8	5	2		2		
66	329		4	17	45	60	69	54	36	24	13	6	1				
67	425	1	4	14	41	64	97	81	53	41	15	9	5				
68	538	3	8	25	59	80	116	95	64	40	24	10	10	3	1		
69	475	1	2	16	47	71	106	80	68	43	17	14	6	2			2
70	421		3	13	34	57	85	88	57	39	21	17	5	1	1		
71	312	4	3	9	15	36	55	60	54	39	18	9	9		1		
72	233			5	14	24	42	45	39	21	24	11	6	1	1		
73	107		1	1	4	8	18	26	21	12	9	2	4				1
74	60		1	1	2	3	12	12	7	14	5	1	2				
75	30				2		6	5	4	10	1	2					
76	13					1	3	1		4	2	1		1			
77	2											1	1				
78	3							2		2							
79	1								1								
Total	3,426	13	33	138	339	491	690	616	460	323	160	93	53	8	6		3

P_1—
Number of cases: 1,412.
Height: Mean, 68.35 inches; standard deviation, 2.70±0.03 inch.
Chest circumference (expiration): Mean, 33.70 inches; standard deviation, 2.14±0.03 inch.
Correlation: 0.2066±0.0172.

P_2—
Number of cases: 2,014.
Height: Mean, 68.49 inches; standard deviation, 2.77±0.03 inch.
Chest circumference (expiration): Mean, 33.64 inches; standard deviation, 2.14±0.02 inch.
Correlation: 0.2082±0.0144.

P_1 and P_2—
Number of cases: 3,426.
Height: Mean, 68.43 inches; standard deviation, 2.75±0.02 inch.
Chest circumference (expiration): Mean, 33.67 inches; standard deviation, 2.14±0.02 inch.
Correlation: 0.2073±0.0110.

TABLE 165.—*Correlation between height and weight in recruits with varicocele, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																										
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219
58 and under	3									1		1						1										
59	22				1					1		4			3	11	2											
60	14				1		1	1	3	1	2	1	1		1	1		1										
61	32				1		3	4	4	2	2	2	2	4	4	2		1	1									
62	57				3	7	10	7	8	8	4	5			1					2	1		1					
63	109				5	7	14	18	14	18	12	10	4	3	2	1		1										
64	193			1	2	4	21	22	23	36	23	25	13	7	4	6	1	1	2	1	1							
65	369				4	2	30	38	57	56	58	34	30	23	16	4	7	3	2	4	1							
66	556				4	4	24	49	58	101	87	78	51	31	25	18	5	9	8	3	1							
67	730				1	1	17	34	57	92	112	131	110	67	51	23	11	5	10	2	3	1			2			
68	935				2	2	11	15	58	114	141	146	138	110	80	55	29	12	12	6	3	1						
69	874				1	4	14	18	57	88	123	147	122	93	70	57	35	20	8	6	5	3	2		1			
70	737					1	2	7	4	32	67	90	94	132	107	71	46	31	18	18	7	4	2	2	2			
71	540							1	8	19	36	49	75	82	77	61	48	38	21	9	5	6	3	1	1			
72	331								2	4	18	25	34	46	38	52	29	21	23	14	8	4	7	3	2			1
73	169									5	4	7	20	26	24	20	15	15	12	11	3	2	2		2	1		
74	102									2	5	3	7	6	20	11	9	7	11	9	6	2	2	1	1			
75	44											1		5	6	7	5	2	6	2	4	3	1		2			
76	23													2	1	2	2	2	3	1	3	4	2	1				
77	2														1				1									
78	3														1					2								
79	4															1			1	1		1						
Total	5,849			1	25	32	147	214	353	580	694	759	701	637	532	403	244	170	139	91	51	31	22	8	13	1		1

P_1—Number of cases: 3,453.
Height: Mean, 68.32 inches; standard deviation, 2.78±0.02 inch.
Weight: Mean, 141.88 pounds; standard deviation, 16.68±0.14 pound.
Correlation: 0.4995±0.0086.

P_2—Number of cases: 2,396.
Height: Mean, 68.44 inches; standard deviation, 2.71±0.03 inch.
Weight: Mean, 141.55 pounds; standard deviation, 16.18±0.16 pound.
Correlation: 0.4854±0.0105.

P_1 and P_2—Number of cases: 5,849.
Height: Mean, 68.37 inches; standard deviation, 2.75±0.02 inch.
Weight: Mean, 141.75 pounds; standard deviation, 16.47±0.10 pound.
Correlation: 0.4939±0.0067.

TABLE 166.—*Correlation between height and chest circumference (expiration) in recruits with varicocele, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42
58 and under	3	1				2										
59	16			1	1	3	3	5		2			1			
60	14	1		1	2	3	3	3	1							
61	32		1	2	4	6	7	4	5	1	1	1				
62	56		8	8	8	14	8	4	3	2		1				
63	109		8	14	29	20	12	16	7	2	1					
64	193		11	22	37	45	31	21	13	7	1	3	2			
65	369		10	40	63	76	80	47	23	18	6	4	2			
66	556	4	24	62	97	101	105	77	50	21	6	6	3			
67	730		17	51	112	148	156	119	66	37	15	4	4	1		
68	932	2	18	57	127	168	202	189	87	51	21	5	3		2	
69	873		14	56	88	171	179	166	117	55	17	5	4	1		
70	736		11	19	71	132	176	131	92	55	30	12	7			
71	540	3	2	20	61	83	114	113	79	38	16	7	3			1
72	331	1	7	7	27	47	64	61	54	33	20	4	5	1		
73	169			5	20	26	38	22	20	22	10	3	3			
74	101		1	3	7	22	14	21	16	7	6	4				
75	44				1	7	8	6	9	8	2	2	1			
76	23				2	1	3	5	2	4	3	3				
77	2						1		1							
78	3							1		1	1					
79	4								1	3						
Total	5,836	12	132	368	757	1,075	1,204	1,011	646	367	156	64	38	3	2	1

P_1—
Number of cases: 3,441.
Height: Mean, 68.33 inches; standard deviation, 2.75±0.02 inch.
Chest circumference (expiration): Mean, 33.24 inches; standard deviation, 1.95±0.02 inch.
Correlation: 0.2575±0.0107.

P_2—
Number of cases: 2,395.
Height: Mean, 68.44 inches; standard deviation, 2.71±0.03 inch.
Chest circumference (expiration): Mean, 32.79 inches; standard deviation, 1.95±0.02 inch.
Correlation: 0.1836±0.0133.

P_1 and P_2—
Number of cases: 5,836.
Height: Mean, 68.38 inches; standard deviation, 2.74±0.02 inch.
Chest circumference (expiration): Mean, 33.06 inches; standard deviation, 1.97±0.01 inch.
Correlation: 0.2237±0.0084.

14. HEMORRHOIDS.

(*a*) *Stature.*—The average stature of 1,027 men among the first million found at mobilization camps to have hemorrhoids is 67.82 inches, or 0.33 inch above the average of the stature of the population of Table I; for the 797 men in the second million the average is 67.77 inches; and for the 1,824 men in both groups combined 67.80 inches, which is 0.31 inch above the mean stature for the whole of the first million men as shown in Table I.

The standard deviation of stature of men found with hemorrhoids is for the first million 2.68, which is 0.03 less than the standard deviation of the whole population of Table I; for the second million it is 2.91; and for both lots combined it is 2.78 ± 0.03, a value which differs from the standard deviation of the first million by a little more than twice the probable error.

Men found with hemorrhoids are therefore a somewhat selected lot, being taller than the average. This excess stature is probably one of the causes of hemorrhoids, just as it is of varicose veins and varicocele. Since the variability of the population with hemorrhoids is the same as that of the general population, we may conclude that the men with hemorrhoids constitute a normally distributed part of the population, only distributed about a higher mean stature.

The relation between the distribution of stature in the population with hemorrhoids and the population of recruits in general is shown in Plate XXXII. It appears at once that the population with hemorrhoids consists of men taller than the average. This is indicated both by the constant deficiency of short men 60 to 67 inches tall and the constant excess of tall men 68 to 76 inches tall. The mode in the distribution curve of the population with hemorrhoids is at 68 inches, or one-half inch above that of recruits in general. Moreover, this mode is relatively high and acute, enforcing the lesson that the population with hemorrhoids is affected with this condition largely because of their tall stature.

(*b*) *Weight.*—The average weight of the 1,027 men found with hemorrhoids among the first million examined at mobilization camps is 141.44 pounds, or 0.10 below the average of the population of Table I; for 797 men in the second million the mean weight is 139.06; and for the 1,824 men in both groups it is 140.39 (Table 167), which is 1.15 below the average of the first million as shown in Table I. This low average weight is associated with abnormally high stature, so that men with hemorrhoids are a tall and slender group. The standard deviation for the first million is 16.78, or 0.64 below the standard deviation of Table I; for the second million it is 16.75; and for both together it is 16.76 pounds, which is 0.66 pound below the standard deviation of the first million men as indicated in Table I. This result indicates that the population with hemorrhoids is a specially selected population, selected tall and slender men, and that this build is in some way causally related to hemorrhoids and has not been induced merely by the hemorrhoids.

The relation between the distribution of weights of the population found with hemorrhoids and that of the whole population of recruits is shown graphically in Plate XXXV. The flattening at the top of the curve is possibly due to the small number of cases.

TABLE 167.—*Correlation between height and weight in recruits with hemorrhoids, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224
58 and under	2										1		1																
59	4								1	2		1																	
60	5					1	1		1			1	1																
61	11	1				1	2	2		1	2			1		1													
62	27				1	3	6	4	2	3	3	2	2			1													
63	56				1		4	5	12	13	8	5	3	2		2			1										
64	100	1				5	8	14	19	17	17	8	5	3	3														
65	159					3	7	16	26	29	29	16	17	7	4	1	3	1											
66	201						11	11	19	37	27	33	28	15	7	5	3	3	1				1						
67	253				2		1	20	25	28	40	25	32	37	15	14	7	3	4										
68	301					1	4	10	12	39	36	47	40	36	23	19	17	6	4	4	3								
69	237						1	9	12	18	26	32	30	34	30	20	8	8	1	2	4	1			1				
70	181						1		3	9	14	28	21	25	24	18	13	6	6	3	2	1		2	4				1
71	127									4	15	12	19	18	12	13	7	9	11	3	1	1	1		1				
72	78							1		1	5	3	17	12	9	4	10	3	5	4		1		1	1	1			
73	45									1	1	5	3	4	9	4	4	6	2	2	2		1	1					
74	20											1		2	3	2	2	5	2	2		1							
75	9															2	1	1	1	1	3								
76	5								1					1	1	1									1				
77																													
78	1																								1				
79																													
80 and over	2										1					1													
Total	1,824	2			4	14	46	92	133	202	225	219	219	197	140	108	75	51	38	21	15	5	3	4	9	1			1

P_1—
Number of cases: 1,027.
Height: Mean, 67.82 inches; standard deviation, 2.68±0.04 inch.
Weight: Mean, 141.44 pounds; standard deviation, 16.78±0.25 pound.
Correlation: 0.5115±0.0155.

P_2—
Number of cases: 797.
Height: Mean, 67.77 inches; standard deviation, 2.91±0.05 inch.
Weight: Mean, 139.06 pounds; standard deviation, 16.75±0.28 pound.
Correlation: 0.5285±0.0172.

P_1 and P_2—
Number of cases: 1,824.
Height: Mean, 67.80 inches; standard deviation, 2.78±0.03 inch.
Weight: Mean, 140.39 pounds; standard deviation, 16.76±0.19 pound.
Correlation: 0.5219±0.0115.

TABLE 168.—*Correlation between height and chest circumference (expiration) in recruits with hemorrhoids, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	2							1		1							
59	4				1	2	1										
60	5					3	1	1									
61	11		1		3	2	3			2							
62	27	1	1	5	4	6	5	1	2		2						
63	56		3	4	11	11	10	9	5	2	1						
64	99		3	7	21	27	21	16	3	1							
65	159	1	1	17	24	34	34	28	17	1	2						
66	201	1	6	8	21	46	54	30	20	7	8						
67	252		2	16	29	59	55	43	29	12	6	1					
68	299	2	6	16	31	61	54	54	44	22	7	1	1				
69	237		6	11	28	41	44	48	30	13	8	4	3				1
70	181	1	3	5	8	33	39	37	34	13	3	2	1	1			1
71	126			4	18	20	21	32	17	8	4	1	1				
72	78			1	4	18	18	17	11	3	2	3	1				
73	45				4	8	9	8	8	5	3						
74	20				1	1	2	4	6	4	2						
75	9					1	1	1		4		2					
76	5			1		1		1	2								
77																	
78	1							1									
79																	
80 and over	2				1			1									
Total	1,819	6	32	95	209	374	372	333	228	98	48	14	·7	1			2

P_1—Number of cases: 1,024.
Height: Mean, 67.82 inches; standard deviation, 2.68 ±0.04 inch.
Chest circumference (expiration): Mean, 33.22 inches; standard deviation, 1.87±0.03 inch.
Correlation: 0.2230±0.0200.

P_2—Number of cases: 795.
Height: Mean, 67.77 inches; standard deviation, 2.91 ±0.05 inch.
Chest circumference (expiration): Mean, 32.94 inches; standard deviation, 1.89±0.03 inch.
Correlation: 0.2169±0.0228.

P_1 and P_2—Number of cases: 1,819.
Height: Mean 67.80 inches; standard deviation, 2.78±0.03 inch.
Chest circumference (expiration): Mean, 33.10 inches; standard deviation, 1.88±0.02 inch.
Correlation: 0.2202±0.0150.

(*c*) *Chest circumference.*—The average chest circumference found in the 1,024 men with hemorrhoids among the first million at mobilization camps is 33.22 inches, or the same as the average of the whole population of Table II. In the 795 men with the defect among the second million the mean chest circumference is 32.94, and for the 1,918 men in both groups together it is 33.10, which is 0.12 inch below the average for the first million men, as shown in Table II. Since these men, however, are taller than the average, we may say that the smaller chest circumference means that the men are tall and slender.

The standard deviation for chest circumference for men with hemorrhoids for the first million is 1.87, or 0.14 less than the standard deviation of the whole population of Table II. For the second million it is 1.89. Combining these with the first million we have a standard deviation of 1.88, or 0.13 less than the standard deviation of the first million, shown in Table II. This again indicates that the men with hemorrhoids constitute in respect to chest circumference also a selected class, and that their tall, slender form is antecedent to the incidence of hemorrhoids.

The relation between the distribution of chest girths in the population found with hemorrhoids and the population in general is shown graphically in Plate XXXVIII. Though there is no very striking difference between the two distributions, yet there is a slight excess of men undersize, which is associated with a slight deficiency in weight found in the same population, despite the fact that they are of slightly greater height than the average.

(*d*) *Robustness.*—The group of men with hemorrhoids has an index of build of 30.54, or 0.53 below the average for the United States. Pignet's index of robustness is 22.50. This places them in the group with medium constitution, and they are thus shown to be between the group with varicose veins and varicocele in physical development.

For each inch of the average height there are 2.07 pounds of weight, as compared with the average 2.097, and 0.488 inch of chest measurement (expiration), as compared with the normal 0.492.

15. ASTHMA.

(*a*) *Stature.*—The average stature of 614 men with asthma in the first million men examined at mobilization camps was 67.22 inches, or 0.27 less than the average of the whole population in Table I. In 967 men in the second million men the average is 67.26 inches, and for the 1,581 men in both lots together it is 67.24 inches (Table 169), which is 0.25 inch below the mean stature of the first million men. Men with asthma are of slightly less than mean average stature and this is probably indicative of their environmental or racial selection or both. It appears that asthma is much commoner in the Northern States than in the Southern and the Northern States contain a larger proportion of short men. In the mountain regions of Tennessee and Kentucky, where there are very tall men, asthma is relatively uncommon. The short stature of men found with asthma is not due to the disease itself, but to the fact that the larger part of the population is found in that environment of the country in which the causative factors for asthma are especially found.

(*b*) *Weight.*—In 614 men found with asthma among the first million at mobilization camps the average weight is 139.38 pounds (Table 169), or 2.16

pounds below the average of the population of Table I; for the 967 men in the second million the mean weight is 138.78 pounds, and for the 1,581 men in both groups together it is 139.01 pounds, or 2.53 pounds below the mean weight for the whole of the first million. This low weight is only in part accounted for by the low average stature, since the average weight for a stature of 67.24 inches is 141.02 pounds, while for asthmatics it is 139.01 pounds. The standard deviation for the first million is 17.28 pounds, or 0.14 pound below the standard deviation in weight of the population of Table I. The standard deviation for the second million is 18.35, an extraordinary increase over the standard deviation for the first million men. The average of the two lots is 17.94 ± 0.22, which is 0.52 above the standard deviation of the entire first million men, as shown in Table I. This result suggests the tentative conclusion that asthma is partly responsible for the small size; that it reduces the weight.

The relation between the distribution of weights in the population found with asthma and that of the population of recruits in general is shown graphically in Plate XXXIV. It appears from the graph that there is an excess of men underweight in the population with asthma, but this is associated with the deficiency in average stature of such men. The mode in the distribution of weights of asthmatics agrees with that of the population at large—about 137 pounds. It may be, however, that there is a deficiency of build among the asthmatics which is determined by the disease itself. In any case there is a marked deficiency of men between 142 and 169 pounds of weight.

(c) *Chest circumference.*—The average chest circumference of the 612 men found with asthma among the first million is 33.57, or 0.35 inch above the average chest circumference of the population of Table I; for the 967 men in the second million (Table 170) it is 33.19; and for the 1,579 men in both combined (Table 170) it is 33.34. This is 0.12 inch above the average chest circumference of all recruits. Since the average stature of men with asthma is less than the average of the whole population studied, and since they are below the average in weight, this large average chest circumference would seem to be in some way determined by the disease. This conclusion is confirmed by the circumstance that the standard deviation for chest circumference for the two combined is 2.12, or 0.11 above the average, an excess which is about four times the probable error. This high variability suggests that the enlarged chest circumference of asthmatic men has been superimposed upon both large and small men, doubtless in consequence of the disease. We may conclude, then, that just the tendency to violent inhalations and expansions of the chest are responsible for the extraordinary development of the chest even in the relatively short and slender asthmatics.

The relation between the distribution of the chest circumference (expiration) in the population found with asthma among the draft recruits and in the population of recruits in general is shown in Plate XXXVII. It appears from this graph that the curve, although somewhat irregular, is moved to the right, showing a greater chest circumference (expiration). The apparent mode is, however, between 32 and 33 inches, or about one-half an inch to the left of the mode of the population of the recruits in general. This shifting of the mode to the left is expected from the small size of asthmatics. It represents the part of the asthmatic population whose chest is not yet abnormally enlarged.

TABLE 169.—*Correlation between height and weight in recruits with asthma, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																												
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229	230–234	235 and over.
58 and under	2						1											1														
59	6									1		1	3					1														
60	7				1		2	1	1	1	1																					
61	15					2	4	2		1	1		2	1	1	1																
62	21			1	1	1	3	2	5	4	1			2				1														
63	72				2	5	5	15	9	11	10	6	2	1		2	1	2				1										
64	112				1	6	5	12	24	25	9	9	4	5	2	2	3	1	1	1		1			1							
65	178			1	1	5	11	13	26	21	23	28	17	11	8	3	3	2	3		1					1						
66	196					4	4	17	17	26	29	27	26	16	5	12	6	2	2	2				1								
67	242				1	2	10	13	25	28	31	39	27	25	14	5	5	5	4	4		1	3									
68	231					2	2	11	18	23	25	33	28	31	17	12	11	4	5	2	4	1		2								
69	186				1		2	8	13	17	21	21	29	18	19	12	5	7	5	2	1	3	2									
70	138				2		1	3	6	9	13	20	23	13	10	9	13	5	7	3		1										
71	93									1	6	13	8	15	22	4	7	4	7	2	2	1			1							
72	40									2	1	7	4	7	4	3	5	1	3	1							1					1
73	27								1		3	2	1	4	3	2	1	2	2	1	1	2		1				1				
74	7									1		1			1		1			1					1							1
75	3															1				1	1											
76	4												1	1			1		1													
77																																
78																																
79	1															1																
Total	1,581			2	10	27	50	97	145	171	174	207	175	150	106	69	62	38	40	20	10	11	5	4	3	1	1	1				2

P_1—
Number of cases: 614.
Height: Mean, 67.22 inches; standard deviation, 2.77±0.05 inch.
Weight: Mean, 139.38 pounds; standard deviation, 17.28±0.33 pound.
Correlation: 0.3833±0.0232.

P_2—
Number of cases: 967.
Height: Mean, 67.26 inches; standard deviation, 2.67±0.04 inch.
Weight: Mean, 138.78 pounds; standard deviation, 18.35±0.28 pound.
Correlation: 0.4226±0.0178.

P_1 and P_2—
Number of cases: 1,581.
Height: Mean, 67.24 inches; standard deviation, 2.71±0.03 inch.
Weight: Mean, 139.01 pounds; standard deviation, 17.94±0.22 pound.
Correlation: 0.4069±0.0142.

Table 170.—*Correlation between height and chest circumference (expiration) in recruits with asthma, first (P_1) and second (P_2) million draft recruits.*

Height in inches.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	2					1			1								
59	6					2		1	2	1							
60	7			1	1	2		1	1	1							
61	15			2	3	2	2	2	3	1							
62	21			1	3	4	4	5	1	2		1					
63	72		3	1	16	20	15	8	6	1		1		1			
64	111			6	17	31	16	19	12	3		1	4	2			
65	178	1	6	6	22	36	42	22	19	11	8	3	1	1			
66	195	2	2	10	22	40	39	32	29	9	8	2					
67	242	1	4	11	28	56	44	44	22	16	9	2	5				
68	231	1		17	22	44	41	45	35	15	3	4	1	1		1	1
69	186	1	7	12	21	27	27	28	29	18	8	4	3		1		
70	138		5	2	7	31	27	23	23	10	4	4	2				
71	93			2	7	10	20	16	15	12	6	4	1				
72	40			2	3	4	9	5	8	3	2	1	1		2		
73	27				2	2	8	1	5	6	2			1			
74	7			1		1	1	1	1		1						1
75	3						1	1			1						
76	4				1		2		1								
77																	
78																	
79	1									1							
Total	1,579	6	27	74	175	313	298	254	213	110	52	27	18	6	3	1	2

P_1—
Number of cases: 612.
Height: Mean, 67.23 inches; standard deviation, 2.77±0.05 inch.
Chest circumference (expiration): Mean, 33.57 inches; standard deviation, 2.11±0.04 inch.
Correlation: 0.1274±0.0268.

P_2—
Number of cases: 967.
Height: Mean, 67.26 inches; standard deviation, 2.67±0.04 inch.
Chest circumference (expiration): Mean, 33.19 inches; standard deviation, 2.11±0.03 inch.
Correlation: 0.1628±0.0211.

P_1 and P_2—
Number of cases: 1,579.
Height: Mean, 67.25 inches; standard deviation, 2.71±0.03 inch.
Chest circumference (expiration): Mean, 33.34 inches; standard deviation, 2.12±0.03 inch.
Correlation: 0.1477±0.0166.

(*d*) *Robustness.*—Men with asthma have an index of build of 30.75, which is 0.32 below the average of the United States. Pignet's index is 21.09, which places them in the class with good constitution. For each inch of the average height there are 2.07 pounds of weight, as compared with the normal 2.097 and 0.496 inch of chest measurement (expiration), as compared with the average 0.492.

16. DEFECTIVE AND DEFICIENT TEETH.

(*a*) *Stature.*—The average stature of the population found with defective and deficient teeth among the 5,166 men in the first million at mobilization camps is 67.26 inches, or 0.23 inch below the average; for 12,817 men in the second million (Table 171) the average stature is 67.26; and for the 17,983 in both together, 67.26, or 0.23 below the average stature for the first million. It appears that men with defective and deficient teeth are strikingly shorter than the average. It does not follow that the short stature is due to the bad teeth.

The standard deviation of stature of men found with defective and deficient teeth is for the first million 2.68, which is only 0.03 less than the standard deviation of the whole population in Table I; for the second million it is 2.69; and for the two combined it is 2.69 ± 0.01, which is 0.02 below the average standard deviation for the first million. The difference is very slight, but so far as it goes, it suggests that the small stature of men with defective and deficient teeth is due rather to a racial characteristic than to any direct influence upon stature by the teeth. The study, "Defects Found in Drafted Men,"[9] shows that there is an exceptionally low rate for defective and deficient teeth among the white agriculturists of the South, among the mountain whites, native whites of Scotch origin, and areas having a large proportion of Scandinavians, Germans, and Austrians. On the other hand, the rate is high in the eastern manufacturing, commuting, and maritime groups, and especially in those sections containing French Canadians. Thus, in general, the defective teeth are found in small proportions in those parts of the country occupied by tall men and in large proportions in those parts of the country occupied by short men. It seems probable that we have to do here with a varying racial resistance to dental caries.

The relation between the distribution of stature in men with defective and deficient teeth and that of the population of recruits at large is shown graphically in Plate XXXII. One sees at a glance that men with defective and deficient teeth are somewhat shorter on the whole than the population of recruits in general. This is shown by the uniform excess of men 62 to 67 inches in stature and the uniform deficiency of men 68 to 72 inches tall. The modal stature of men with defective and deficient teeth is 67 inches, or one-half inch below the mode of the population of recruits in general; this indicates that the population with defective and deficient teeth is shorter than recruits in general, probably racially shorter, for reasons given above.

(*b*) *Weight.*—The average weight of the 5,166 men found with defective and deficient teeth among the first million at mobilization camps is 139.18 pounds, or 2.36 below the average of the population; for the 12,817 men in the second million it is 137.97 pounds; and for the 17,983 men in both groups together (Table 171) 138.32 pounds, or 3.22 pounds below the mean weight of the first million. This deficiency in weight is only in part accounted for by the low

TABLE 171.—*Correlation between height and weight in recruits with defective and deficient teeth and dental caries, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																										
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219
58 and under	19	2			1		1	2	2	2	3	1	2	2	1													
59	30	2		1		1	2	3	4	4	5	2	2	3									1					
60	73		1	1	7	7	17	10	7	3	9	3	3		1	1		1	1					1				
61	155	1		3	7	18	27	32	23	16	11	7	1	4	1	2			1		1							
62	343		1	3	13	35	61	64	56	49	24	10	9	6	5	2	1	1		3								
63	786		1	6	19	49	86	144	130	133	75	48	36	18	17	7	6	3	6	2								
64	1,210		3	2	3	16	112	206	215	187	136	127	85	51	31	16	6	7	3	2	1				1			
65	1,949			1	17	51	123	227	276	280	278	232	170	115	69	42	23	18	9	7	4	2	3	2				
66	2,416				16	29	100	181	322	369	374	326	241	163	118	69	42	23	20	8	8	2		5				
67	2,722			1	10	19	58	151	246	353	367	389	377	273	177	114	74	41	30	15	15	7	2	1	1	1		
68	2,594				4	11	34	88	180	238	322	410	356	310	261	139	106	46	33	21	11	7	9	4	2	2		
69	2,159			1	1	3	17	40	118	176	235	301	296	273	246	160	115	78	32	21	22	9	5	6	1	2	1	
70	1,497				3	3	5	23	41	80	131	177	211	202	176	154	85	55	53	34	25	14	12	4	4	5		
71	985						1	8	19	44	59	106	122	130	136	112	75	67	38	22	16	13	5	2	9		1	
72	589				1	1	1	2	6	10	28	44	68	77	90	73	59	42	34	22	14	10	3		3		1	
73	278							1		6	10	14	23	33	38	40	31	26	18	6	9	7	6	1	5	1	2	1
74	101					1	1	1	4	1	2	4	7	11	10	11	12	12	8	6		5	2	1	2			
75	45								1			2	3	2	7	7	3	5	3	3	2	4		3				
76	12													1	2	4	2	1	1		1							
77	9														1		1	3	3		1							
78	5															2		2	1									
79	5								1									3							1			
80 and over	1														1													
Total	17,983	5	6	19	102	244	646	1,183	1,651	1,951	2,069	2,203	2,012	1,674	1,388	955	641	434	294	172	130	80	48	30	29	11	5	1

P_1—
Number of cases: 5,166.
Height: Mean, 67.26 inches; standard deviation, 2.68±0.02 inch.
Weight: Mean, 139.18 pounds; standard deviation, 16.84±0.11 pound.
Correlation: 0.5107±0.0069.

P_2—
Number of cases: 12,817.
Height: Mean, 67.26 inches; standard deviation, 2.69±0.01 inch.
Weight: Mean, 137.97 pounds; standard deviation, 16.90±0.07 pound.
Correlation: 0.5054±0.0044.

P_1 and P_2—
Number of cases: 17,983.
Height: Mean, 67.26 inches; standard deviation, 2.69±0.01 inch.
Weight: Mean, 138.32 pounds; standard deviation, 16.89±0.06 pound.
Correlation: 0.5067±0.0037.

TABLE 172.—*Correlation between height and chest circumference (expiration) in recruits with defective and deficient teeth and dental caries, first (P_1) and second (P_2) million draft recruits.*

Height in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	17	1			2	4	2	2	5	1							
59	30		2	4	2	5	9	1	5	2							
60	73	3	6	9	14	16	13	6	4		1		1				
61	154	3	5	32	29	31	33	14	5		1	1					
62	344	7	21	48	71	80	65	32	11	5	1	3					
63	783	14	41	107	158	166	141	79	44	18	7	3	3	1			1
64	1,207	11	37	124	220	284	226	155	89	35	15	6	2		2	1	
65	1,944	20	80	161	304	427	373	272	170	81	29	14	10	1		1	1
66	2,409	15	59	206	386	521	456	366	239	98	40	12	7	2	1	1	
67	2,712	8	49	172	368	529	571	468	285	147	69	22	13	6	1	3	1
68	2,590	6	32	131	298	534	557	459	294	158	67	28	12	8	4	2	
69	2,156	11	32	100	234	384	441	404	282	152	67	35	9	3	1	1	
70	1,490	4	11	59	114	246	312	270	216	151	71	23	8	3	2		
71	982	2	9	42	80	154	179	194	163	82	46	16	14	1			
72	588	1	1	19	38	84	114	126	96	58	31	9	7	2	2		
73	277			8	19	26	43	61	53	32	21	10	3	1			
74	101		4	1	3	11	21	22	10	15	8	4	2				
75	45			1	2	5	9	11	7	3	6	1					
76	11					3		2	2	3	1						
77	9				1		1	6	1								
78	5							1	1	2		1					
79	5						1	1		1	2						
Total	17,932	106	389	1,224	2,343	3,510	3,567	2,952	1,982	1,044	483	188	91	28	13	9	3

P_1—
Number of cases: 5,150.
Height: Mean, 67.26 inches; standard deviation, 2.67±0.02 inch.
Chest circumference (expiration): Mean, 33.25 inches; standard deviation, 1.94±0.01 inch.
Correlation: 0.2713±0.0087.

P_2—
Number of cases: 12,782.
Height: Mean, 67.26 inches; standard deviation, 2.69±0.01 inch.
Chest circumference (expiration): Mean, 32.89 inches; standard deviation, 2.02±0.01 inch.
Correlation: 0.2495±0.0056.

P_1 and P_2—
Number of cases: 17,932.
Height: Mean, 67.26 inches; standard deviation, 2.69±0.01 inch.
Chest circumference (expiration): Mean, 33.00 inches; standard deviation, 2.00±0.01 inch.
Correlation: 0.2551±0.0047.

average stature of the group, since men with a height of 67.24 inches are expected to have an average weight of 141.02 pounds. There is thus a deficiency in weight of men with defective and deficient teeth even when regard is taken for their short stature.

The standard deviation in weight for both groups combined is 16.89 ± 0.06, or 0.53 pound below the average of the first million. This low standard deviation indicates that defective and deficient teeth are found predominantly in men belonging to a short and slender race. It is to be noted that the highest State rates for defective and deficient teeth are found in Vermont, New Hampshire, Rhode Island, Massachusetts, and Maine, all of which have about three times the average rate. Now these are just the States occupied by an excess of French Canadian groups that have a rate of 40.01 for defective and deficient teeth, which is by far the largest ratio of any of the groups. At the same time this group is characterized by exceptionally low stature.

The relation between the distribution of weight of the population found with defective and deficient teeth and that of the population of recruits in general is shown graphically in Plate XXXV. It appears at once that the population with defective and deficient teeth is on the whole characterized by having a weight inferior to the average; but they are, however, prevailingly short persons, so that there is little evidence that they are badly nourished on account of the defective teeth.

(*c*) *Chest circumference*.—The average chest circumference in the 5,150 men found with defective and deficient teeth among the first million at mobilization camps is 33.25, or 0.03 above the average of the whole population. For the 12,782 men in the second million it is 32.89, and for the 17,932 men in the two groups combined (Table 172) it is 33.00, or 0.22 inch less than the average for the whole of the first million. The standard deviation of chest circumference for the two groups is 2.00, or 0.01 below the standard deviation for the first million. This is not a significant difference.

The relation between the distribution of chest girths in the population found with defective and deficient teeth and recruits in general is shown graphically in Plate XXXVIII. This shows that, on the whole, persons with defective and deficient teeth have a smaller chest girth than the average, as indeed thay have a smaller weight and stature. On the whole, they contain an excess of men of small size, belonging to small races.

(*d*) *Robustness*.—Men with defective and deficient teeth have an index of build of 30.33, which is 0.74 below the average for the United States. Pignet's index is 22.31, which places them in the class with the medium constitution. For each inch of the average height there are 2.06 pounds of weight, as compared with the normal 2.097, and 0.491 inch of chest measurement (expiration), as compared with the normal 0.492.

17. HERNIA.

(*a*) *Stature*.—The average stature of 13,822 men with hernia found among the first million men at mobilization camps is 67.40, which is only 0.09 inch below the mean stature of the population of Table I; for the 20,398 men in the second million it is 67.47; for the 34,220 men in both combined (Table 173), 67.44, or 0.05 less than the average for the first million. The standard deviation of stature of men with hernia is for both groups 2.76 ± 0.01, which is 0.05 inch above the average for the first million as shown in Table I. One may conclude, therefore, that hernia occurs in the different statures in about the same proportion as the different statures occur in the whole population.

The relation between the distribution of stature in the population with hernia and that of the population of drafted men in general is shown graphically in Plate XXXII. This curve indicates that men with hernia are not far from a fair sample of the whole population in respect to stature. There is, however, a slight excess of men shorter than the average. This is shown by the deficiency in the population with hernia between 67 and 70 inches, which overbalances the shift of the modal point from $\frac{1}{4}$ to $\frac{1}{2}$ inch to the right. The excess of short men is, however, not at all marked.

(*b*) *Weight.*—In 13,822 men found with hernia among the first million at mobilization camps, the average weight is 141.69 pounds, or 0.15 pound above the average; for the 20,398 men in the second million the weight is 140.91 pounds, and for the 34,220 men in both groups combined (Table 173), 141.23, which is 0.31 pound below the average of the first million. Since the men with hernia are slightly below the average stature, this result in the case of such men shows about normal build. The standard deviation of weight for both groups combined is 17.17, or 0.25 pound below the standard deviation in weight of the population of Table I. This indicates that hernia is especially apt to affect persons who are slightly under weight, although stature has practically nothing to do with its occurrence. This result might have been anticipated since it is just the men who are below normal vigor, as indicated partly by underweight, who, whatever their size, are most apt to show the effects of a strain in the abdominal muscles and the ligaments of the inguinal region.

The relation between the distribution of weights in the population found with hernia and that of the population of recruits in general is shown graphically in Plate XXXV. It appears that there is no important difference in the distribution of weights in the two populations, as indeed we have found there is no important difference in stature.

(*c*) *Chest circumference.*—The average chest circumference in the 13,822 men found with hernia among the first million at mobilization camps is 33.23 inches, or 0.01 inch greater than the average chest circumference for the whole population of Table II; for the 20,398 men in the second million it is 33.04; and for the 34,220 men in both groups combined (Table 174) it is 33.11, which is 0.11 less than the average of the first million as shown in Table II. The standard deviation of chest circumference for both groups combined is 2.00 ± 0.01, which is practically that of all of the first million men, as shown in Table II. It appears, then, that men in whom hernia is found have slightly less average weight and chest circumference than men of their height, which is almost exactly the average.

TABLE 173.—*Correlation between height and chest circumference (expiration) in recruits with hernia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	46	...	1	3	7	10	11	5	7	2	...	...	...	...	...	...	...
59	69	...	1	11	10	13	14	7	5	4	3	...	1	...	...	...	...
60	118	...	6	12	21	29	20	12	8	6	3	1	...	...	...	...	...
61	340	6	20	39	66	67	70	37	15	13	5	2	...	...	...	...	...
62	639	5	34	65	115	163	102	85	44	14	6	3	2	1	...	...	...
63	1,283	14	55	139	243	282	226	164	91	32	24	6	6	1	...	...	...
64	2,233	9	85	219	396	476	422	315	159	100	31	13	6	2	...	...	...
65	3,312	21	99	276	569	706	631	478	289	137	65	23	15	1	2	...	...
66	4,420	10	108	310	664	934	918	657	430	228	96	31	24	5	4	...	1
67	4,858	13	103	314	666	948	1,055	789	525	238	113	66	26	2	...	...	...
68	5,007	11	60	268	577	949	1,046	915	567	349	157	60	32	12	...	2	2
69	4,227	7	38	191	451	760	856	806	551	301	161	56	34	5	8	1	1
70	3,245	5	20	114	303	520	701	590	482	286	138	46	24	11	3	...	2
71	2,130	6	20	64	153	303	459	438	323	218	77	44	18	4	2	...	1
72	1,207	1	6	20	90	168	222	252	194	134	69	21	21	5	2	1	1
73	606	1	2	6	30	73	121	123	111	68	39	16	10	2	3	...	1
74	281	1	1	...	16	22	43	64	48	45	21	12	5	1	1	1	...
75	109	...	...	...	2	11	11	22	24	17	13	5	3	1	...	...	...
76	49	...	...	...	5	5	8	9	7	4	6	2	3	...	...	...	...
77	17	...	...	...	...	1	1	3	4	1	4	...	3	...	...	...	...
78	11	...	...	...	...	2	3	2	1	...	2	...	1	...	...	...	...
79	7	...	...	...	...	1	...	1	2	1	1	...	1	...	...	...	...
80 and over	6	...	...	1	1	1	...	2	1	...	...	...	...	...	...	...	...
Total	34,220	110	659	2,052	4,385	6,444	6,940	5,776	3,888	2,198	1,034	407	235	53	25	5	9

P_1—
Number of cases: 13,822.
Height: Mean, 67.40 inches; standard deviation, 2.74 ± 0.01 inch.
Chest circumference (expiration): Mean, 33.23 inches; standard deviation, 1.99 ± 0.01 inch.
Correlation: 0.2515 ± 0.0054.

P_2—
Number of cases: 20,398.
Height: Mean, 67.47 inches; standard deviation, 2.77 ± 0.01 inch.
Chest circumference (expiration): Mean, 33.04 inches; standard deviation, 2.01 ± 0.01 inch.
Correlation: 0.2372 ± 0.0047.

P_1 and P_2—
Number of cases: 34,220.
Height: Mean, 67.44 inches; standard deviation, 2.76 ± 0.01 inch.
Chest circumference (expiration): Mean, 33.11 inches; standard deviation, 2.00 ± 0.01 inch.
Correlation: 0.2420 ± 0.0034.

TABLE 174.—*Correlation between height and weight in recruits with hernia, first (P_1) and second (P_2) million draft recruits.*

Height in inches.	Total.	Weight, in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229
58 and under	47	1	3	2	3		3	2	3	3	5	1	2	4	3	4	1	4	1	2										
59	71			3	1	6	4	5	9	8	3	7	5	3	4	2	2	7	1						1					
60	120	1			2	11	25	14	19	8	10	11	6	2	4	3	1		2					1						
61	341			4	18	26	38	59	53	46	27	24	20	12	5	3	1	2	2					1						
62	642			2	23	31	86	95	98	104	68	61	24	19	11	9	5	5	1											
63	1,288		1	3	24	62	118	203	198	214	155	116	87	45	25	14	11	8	2	1	1									
64	2,249			2	21	61	152	249	336	340	353	278	176	107	75	35	27	14	8	7	4	1		3						
65	3,321		1	1	18	56	159	281	433	515	493	450	330	240	123	83	55	40	18	10	8	4	2	1						
66	4,433			2	8	32	133	261	424	635	641	707	536	384	267	161	87	52	41	18	23	11	4	3	3					
67	4,871				12	21	61	227	372	573	690	714	708	546	308	239	161	102	51	32	25	8	7	6	7	1				
68	5,017				5	11	32	116	283	476	589	730	736	606	478	321	238	150	87	62	40	22	10	9	12	4				
69	4,242						12	62	145	251	417	560	651	577	476	409	227	171	109	59	37	25	26	14	12	1	1			
70	3,249						3	18	73	135	255	374	422	462	438	340	257	174	119	64	43	21	23	9	14	4	1			
71	2,135						1	5	27	62	120	186	231	301	307	250	210	154	111	55	47	24	17	14	11		2			
72	1,209							4	6	16	46	87	96	134	142	155	144	120	71	67	41	26	17	8	24	1	1	2	1	
73	607					1		1		3	15	13	49	56	71	80	83	65	48	31	30	25	14	7	11		2			2
74	283							1		1	1	8	16	19	28	33	35	37	26	27	13	8	11	7	6	2	1	1	2	
75	109											2	2	8	7	6	17	10	14	12	10	6	9	2	4					
76	49										1	2	3	4	6	2	3	5	8	2	2	2	3	1	3		2			
77	17											1				1	3	1		2	2	1	1	1	4					
78	11									1	1		1		1	2		1		1	2				1					
79	7											2		1					1				1	1	1					
80 and over	6											3		1	1							1								
Total	34,324	2	5	19	135	318	827	1,603	2,479	3,391	3,890	4,337	4,101	3,531	2,780	2,152	1,568	1,122	721	452	328	185	145	88	114	13	10	3	3	2

P_1—
Number of cases: 13,870.
Height: Mean, 67.40 inches; standard deviation, 2.74±0.01 inch.
Weight: Mean, 141.69 pounds; standard deviation, 17.22±0.07 pound.
Correlation: 0.5285±0.0041.

P_2—
Number of cases: 20,454.
Height: Mean, 67.47 inches; standard deviation, 2.77±0.01 inch.
Weight: Mean, 140.91 pounds; standard deviation, 17.12±0.01 pound.
Correlation: 0.5130±0.0035.

P_1 and P_2—
Number of cases: 34,324.
Height: Mean, 67.44 inches; standard deviation, 2.76±0.01 inch.
Weight: Mean, 141.23 pounds; standard deviation, 17.17±0.04 pound.
Correlation: 0.5188±0.0027.

TABLE 175.—*Correlation between height and weight in recruits with enlarged inguinal rings, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weights, in pounds.																						
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under	31					3	2	1	2	3	8	3	2	2	2		2	1							
59	75				3	1	7	7	14	8	4	7	9	5	2	4	1		1					2	
60	144		1	1	7	12	19	24	21	15	10	7	7	7	2	3	2	2	1		1			2	
61	400				14	29	63	76	81	40	39	24	12	13	4		2	1		1	1				
62	749			4	19	46	105	144	123	95	81	51	31	19	7	8	4	2	4	4				2	
63	1,609			3	27	57	187	262	270	267	206	144	74	41	24	14	12	7	4	6	1	1	1	1	
64	2,839			3	20	82	207	366	441	475	444	309	199	107	71	39	32	13	9	8	4	2	3	3	2
65	4,085			4	11	55	208	431	584	606	614	533	400	270	154	89	37	37	20	17	7	4	2	1	1
66	5,541			1	21	48	152	396	662	798	906	794	622	424	274	169	101	75	33	27	20	7	8	2	1
67	6,501				15	35	94	280	547	828	946	1,016	891	626	469	316	169	98	80	30	24	14	12	5	6
68	6,618				1	17	49	172	372	638	865	1,005	983	798	603	410	272	191	90	57	33	25	17	12	8
69	5,383				4	5	29	82	229	367	573	723	781	753	592	424	289	199	125	85	50	29	22	10	12
70	4,057					2	13	28	89	214	314	522	577	592	526	389	304	155	133	71	52	31	18	10	17
71	2,753						2	11	31	93	163	280	354	389	388	301	264	179	111	68	54	19	20	13	13
72	1,508					2	1	1	12	25	65	99	172	213	206	176	154	119	101	60	47	18	15	10	12
73	778				1		2	1	3	12	13	32	73	88	107	108	95	69	64	34	32	20	7	7	10
74	334								1		1	6	15	25	36	49	48	41	43	21	16	9	10	9	4
75	133									2	2	5	5	11	6	11	13	23	13	13	11	3	7	2	6
76	48								1	1	1	2	2		1	5	5	8	6	6	2	3	2	1	2
77	15											1	1	2	1	2			1		3	1	2	1	
78	9												1	2	1		1	1		1	2				
79	6									1			1		1	1		1				1			
80 and over	3							1						1									1		
Total	43,619		1	16	143	394	1,140	2,283	3,483	4,488	5,255	5,563	5,212	4,388	3,477	2,518	1,807	1,222	839	509	360	187	147	93	94

P_1—
Number of cases: 20,142.
Height: Mean, 67.54 inches; standard deviation 2.69±0.01 inch.
Weight: Mean, 140.17 pounds; standard deviation, 16.64±0.06 pound.
Correlation: 0.5174±0.0035.

P_2—
Number of cases: 23,477.
Height: Mean, 67.40 inches; standard deviation, 2.71±0.01 inch.
Weight: Mean, 140.00 pounds; standard deviation, 16.46±0.05 pound.
Correlation: 0.5077±0.0033.

P_1 and P_2—
Number of cases: 43,619.
Height: Mean, 67.46 inches; standard deviation, 2.70±0.01 inch.
Weight: Mean, 140.08 pounds: standard deviation, 16.54±0.04 pound.
Correlation: 0.5115±0.0024.

TABLE 176.—*Correlation between height and chest circumference (expiration) in recruits with enlarged inguinal rings, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	31		3	4	7	6	6	2	1	1	1						
59	75		5	6	12	14	18	8	10	1			1				
60	144		6	20	24	39	28	14	12		1						
61	400	2	11	57	75	95	66	48	29	11	3	3					
62	748	5	39	97	131	181	128	77	48	23	10	7	2				
63	1, 609	14	65	165	296	358	319	194	111	57	21	6	2		1		
64	2, 839	16	104	267	503	636	553	403	187	110	37	15	7	1			
65	4, 082	16	116	371	656	884	814	628	337	148	76	26	8	2			
66	5, 538	13	119	442	827	1, 208	1, 112	865	525	264	98	40	23		2		
67	6, 497	16	118	438	895	1, 266	1, 402	1, 078	690	355	146	58	27	5	2	1	
68	6, 619	17	90	367	780	1, 267	1, 395	1, 165	800	421	183	78	46	5	4	1	
69	5, 373	6	69	253	569	962	1, 152	972	680	411	184	68	37	5	2		3
70	4, 060	4	30	133	390	721	872	750	574	331	156	59	30	7	2	1	
71	2, 759	4	24	80	216	454	585	551	414	249	106	44	25	5	1		1
72	1, 511		5	38	109	210	300	336	252	129	86	28	17	1			
73	787		3	5	48	109	166	152	134	99	43	18	10				
74	334	1	2	1	16	25	73	68	63	44	23	12	6				
75	133			3	5	16	25	22	23	18	14	5	2				
76	48				3	5	6	8	11	3	7	3	1	1			
77	16				2		4		8	1		1					
78	9		1		1		1	1	2	3							
79	10				1	1		4	1	2		1					
80 and over	3						2		1								
Total	43, 625	114	810	2, 747	5, 566	8, 457	9, 027	7, 346	4, 913	2, 681	1, 195	472	244	32	14	3	4

P_1—
Number of cases: 20,161.
Height: Mean, 67.55 inches; standard deviation, 2.70±0.01 inch.
Chest circumference (expiration): Mean, 33.03 inches; standard deviation, 1.92±0.01 inch.
Correlation: 0.2410±0.0045.

P_2—
Number of cases: 23,464.
Height: Mean, 67.40 inches; standard deviation, 2.71±0.01 inch.
Chest circumference (expiration): Mean, 33.09 inches; standard deviation, 1.97±0.01 inch.
Correlation: 0.2237±0.0042.

P_1 and P_2—
Number of cases: 43,625.
Height: Mean, 67.47 inches; standard deviation, 2.71±0.01 inch.
Chest circumference (expiration): Mean, 33.06 inches; standard deviation, 1.95±0.004 inch.
Correlation: 0.2310±0.0031.

The relation between the distribution of chest girths in the men found with hernia and the population of recruits in general is shown graphically in Plate XXXVIII. There is very little difference in the two curves, but there is an indication of a slight deficiency in chest girth in men with hernia despite the fact that in stature they are fair samples of the whole population. This deficiency in chest girth is possibly due to the condition of malnutrition which favored the hernia.

(*d*) *Robustness.*—Men with hernia show an index of build of 31.05, or 0.02 under the average of the United States. Pignet's index is 21.17, which places them in the class with good constitution. For each inch of the average height there are 2.09 pounds of weight, as compared with the normal 2.097, and 0.491 inch of chest measurement (expiration), as compared with the averages 0.492.

18. ENLARGED INGUINAL RINGS.

(*a*) *Stature.*—The mean stature of 20,142 men found with enlarged inguinal rings among the first million at mobilization camps is 67.54 inches, or 0.05 above the average for the population of Table 175; for the 23,477 men in the second million it is 67.40; and for the 43,619 men in both combined 67.46, or 0.03 below the mean height of the first million men. This is an insignificant difference. The standard deviation of stature for both groups is 2.70, which is again almost exactly the standard deviation for the first million. It appears, therefore, that recruits showing enlarged inguinal rings are typical in their stature of the whole population of recruits; just as are those who show well-developed hernia.

(*b*) *Weight.*—The average weight of 20,142 men found with enlarged inguinal rings among the first million at mobilization camps (Table 175) is 140.17 pounds, or 1.37 below the average of the population of Table I; for the 23,477 men in the second million it is 140.00 pounds; and for the 43,619 men in both groups combined it is 140.08, or 1.46 pounds below the average. The standard deviation is 16.54 ± 0.04, or 0.88 pound below the standard deviation for the first million as shown in Table I. This indicates that, as in the case of hernia, so in the case of enlarged inguinal rings, the defect is found prevailingly in slender persons. It is because they are slender that they have enlarged inguinal rings rather than that the weight is reduced because they have enlarged inguinal rings.

(*c*) *Chest circumference.*—The average chest circumference of the 20,161 men found with enlarged inguinal rings among the first million is 33.03 inches, or 0.19 below the average chest circumference of the population studied; for the 23,464 men in the second million it is 33.09; and for the 43,625 men in both combined (Table 176) 33.06, which is 0.16 below the average chest circumference for the first million as shown in Table II. This result indicates again that men with enlarged inguinal rings are slender. The standard deviation for the two groups combined is 1.95 ± 0.004. This small standard deviation combined with the small chest circumference and low weight indicates that the men with enlarged inguinal rings belong prevailingly to a race of average stature, but that is underweight and abnormally slender.

(*d*) *Robustness.*—The index of build is 30.78, or 0.29 below normal. Pignet's index is 21.89. The pounds of weight to each inch of average height are 2.09, and the inches of chest measurement (expiration) 0.490.

19. FLAT-FOOT.

(*a*) *Stature.*—The average stature of 175,358 men with flat-foot among the first million is 67.30 inches, or 0.19 below the average stature of the population of Table I. For the 94,990 men in the second million (Table 177) the mean stature is 67.28, and for the 270,348 men in both groups combined it is 67.30, or 0.19 below the average for the first million as shown in Table I. The standard deviation for the two combined is 2.70 ± 0.003, or 0.01 below the standard deviation for the total of the first million as shown in Table I. Thus men with flat-foot are shorter and less variable in stature than the population at large. This suggests that we have here to do with a prevalence of flat-foot in the short races.

(*b*) *Weight.*—The average weight of 175,358 men found with flat-foot among the first million at mobilization camps is 143.24, or 1.70 pounds above the average of the population of Table I. For 94,990 men in the second million (Table 177) it is 143.31, and for 270,348 men in both groups combined it is 143.26, or 1.72 pounds above the average of the first million as shown in Table I. This high mean weight is present despite the fact that the average stature of men found with flat-foot is slightly below the average for the whole population. The standard deviation for weight of men with flat-foot for the two groups combined is 18.41 ± 0.02, or 0.99 pound above the average for the first million shown in Table I. This result shows that men with flat-foot are relatively heavy, and that all physical types of men who become heavy may gain flat-foot.

(*c*) *Chest circumference.*—The number of cases of flat-foot were so many and the preliminary inspection indicated that the chest circumference deviated so slightly from the normal that, on account of lack of funds, it was decided not to do the work required to make out the table of relation of height to chest circumference for men with flat-foot.

(*d*) *Robustness.*—The index of build of men with flat-foot is 31.63, or 0.56 above the average of the United States. The chest circumference for men with flat-foot was not calculated, so their index of robustness can not be determined. There are 2.13 pounds of weight for each inch of average height, as compared with the average 2.097.

TABLE 177.—*Correlation between height and weight in recruits with flat-foot, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																													
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209	210–214	215–219	220–224	225–229	230–234	235 and over.
58 and under	135	....	....	1	4	9	9	6	11	12	17	12	11	10	11	5	5	8	2	1	1	....	....	....	....	....	....	....	....	....	....	....
59	530	....	....	2	13	19	40	55	41	48	49	48	44	36	47	23	20	16	10	4	5	2	3	3	1	1	....	....	....	....	....	....
60	1,026	2	3	9	44	85	152	140	147	113	75	53	53	33	38	28	23	9	7	4	5	1	1	....	1	....	....	....	....	....	....	....
61	2,770	....	2	8	76	198	409	431	406	349	267	177	154	81	90	34	20	27	13	9	8	4	3	3	1	....	....	....	....	....	....	....
62	5,644	1	1	24	102	264	659	877	934	810	652	465	295	180	127	73	55	58	20	22	9	7	3	4	1	1	....	....	....	....	....	....
63	11,124	....	1	17	127	358	976	1,491	1,656	1,692	1,469	1,120	766	505	319	198	134	103	79	47	28	10	13	13	1	1	....	....	....	....	....	....
64	18,297	....	1	18	126	334	1,069	1,876	2,515	2,672	2,687	2,233	1,567	1,024	762	470	302	219	131	91	78	40	22	29	12	9	5	3	2	....	....	....
65	27,639	....	1	5	97	292	1,058	2,096	3,169	3,873	4,012	3,768	2,860	2,115	1,496	900	601	479	254	175	154	79	68	54	12	7	4	3	2	1	1	3
66	25,843	....	....	4	40	182	764	1,874	3,180	4,436	5,184	5,120	4,405	3,406	2,437	1,591	1,047	692	495	333	203	133	107	97	36	30	16	17	11	1	1	1
67	40,273	....	....	1	11	119	457	1,313	2,583	3,979	5,157	5,733	5,446	4,609	3,480	2,381	1,615	1,139	670	459	377	213	168	144	83	47	47	19	10	5	1	7
68	39,628	....	....	....	56	39	246	737	1,791	3,022	4,348	5,337	5,393	4,923	4,086	3,000	2,126	1,533	950	608	450	255	207	173	125	78	56	49	14	8	5	13
69	32,135	....	....	1	5	22	92	342	962	1,706	2,884	3,792	4,307	4,252	3,815	2,971	2,291	1,679	1,059	709	459	259	120	55	127	83	53	39	22	7	11	11
70	24,515	....	....	....	38	6	37	132	345	893	1,538	2,351	3,141	3,218	3,131	2,544	2,124	1,609	1,057	711	531	284	234	172	143	94	77	56	22	13	6	8
71	15,334	....	....	....	4	8	13	40	142	313	678	1,159	1,608	1,803	2,021	1,808	1,571	1,200	838	649	539	294	195	126	106	82	58	34	20	5	6	14
72	8,591	....	....	....	15	4	7	10	42	81	249	478	692	911	1,088	1,085	963	827	634	463	321	176	165	101	86	72	42	30	18	7	7	17
73	4,055	....	....	....	4	1	2	1	12	24	62	158	280	347	474	511	495	461	345	240	210	124	81	64	55	37	30	15	8	2	6	6
74	1,645	....	....	....	4	1	5	1	9	8	17	27	66	134	164	189	203	184	173	130	94	62	53	31	29	23	17	9	6	3	....	3
75	621	....	....	....	2	....	....	....	6	4	5	10	24	26	53	73	76	73	57	50	51	26	25	21	12	9	7	4	2	3	....	2
76	290	....	....	....	....	....	....	3	3	2	2	8	7	17	18	27	24	40	35	27	32	17	10	8	1	3	1	2	2	1	....	....
77	113	....	....	....	....	....	....	....	....	1	3	6	5	8	5	5	5	18	16	15	6	4	2	9	1	1	....	1	1	1	....	....
78	73	....	....	....	1	....	....	1	1	1	2	2	1	5	5	11	5	8	8	6	7	2	2	3	....	....	....	....	1	....	....	1
79	63	....	....	....	....	....	1	2	2	2	4	4	9	8	3	3	2	7	4	2	2	1	4	....	....	1	1	....	....	1	....	....
80 and over	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....
Total	270,348	3	9	90	769	1,941	5,996	11,428	17,957	24,041	29,361	32,061	31,134	27,651	23,670	17,930	13,708	10,390	6,857	4,756	3,571	1,993	1,486	1,110	833	579	414	281	141	58	44	86

P_1—
Number of cases, 175,358.
Height: Mean, 67.30 inches; standard deviation, 2.69±0.003 inch.
Weight: Mean, 143.24 pounds; standard deviation, 18.10 ±0.02 pound.
Correlation: 0.4786±0.0012.

P_2—
Number of cases, 94,990.
Height: Mean, 67.28 inches; standard deviation, 2.72±0.004 inch.
Weight: Mean, 143.31 pounds; standard deviation, 18.97 ±0.06 pound.
Correlation: 0.4610±0.0017.

P_1 and P_2—
Number of cases, 270,348.
Height: Mean, 67.30 inches; standard deviation, 2.70±0.003 inch.
Weight: Mean, 143.26 inches; standard deviation, 18.41±0.02 pound.
Correlation: 0.4721±0.0010.

20. DEFECTIVE PHYSICAL DEVELOPMENT.

This term is a vague one used often by the examining boards to avoid recording a more specific diagnosis. It is frequently applied to persons who are far under the normal degree of robustness and also to many cases of malformation of the trunk, such as flat chest or curved spine.

(*a*) *Stature.*—The average stature of 758 men found with defective physical development among the first million examined at mobilization camps is 66.34 inches, or 1.15 inches less than the average stature of the population in Table I. For the 534 men in the second million it is 66.91, and for 1,292 men in both groups together (Table 178) 66.57, or 0.92 inch below the mean stature of the whole of the first million as given in Table I. We have here a very striking inferiority in stature of the men with "defective physical development." And there is reason for thinking that many persons who were below the standard minimum stature were on that account given the diagnosis "defective physical development." The standard deviation in stature of men placed in this category is for the two groups 3.84 ± 0.05, which is the largest standard deviation of stature shown in Table 187. This simply means that the diagnosis has a very scattered application through the whole range of the human statures. It is applied, as we have seen, prevailingly to very short persons, but also to tall persons who are very thin, flat chested, or otherwise malformed. A comparison of the range of different statures of men with defective physical development and of the total defective population shows clearly the significance of this high variability. For whereas in the population as a whole there is a larger proportion of men with the stature of 67 inches (14.6 per cent) than of any other inch class; yet, of men diagnosed as having defective physical development, there were in this stature class only 9.8 per cent. Instead of the proportion in the classes at each side of the mean diminishing as in the normal frequency curve, in this selected class the numbers actually increase, being 11.1 per cent for men 66 inches tall and 11.9 per cent for men 68 inches tall. The proportion of men 59 inches tall is nearly 25 times the proportion of such men in the whole population. There are nearly 11 times as many men 60 inches tall in this special group as in the whole population. Also there are disproportionately high ratios for statures 71 inches and above. Of men 79 inches tall, there are nearly 15 times as many in the defective physical development group as in the population at large. It is the extremes, then, that were prevailingly diagnosed as of defective physical development.

(*b*) *Weight.*—The average weight of the 758 men found with defective physical development among the first million at mobilization camps (Table 178) is 128.94 pounds, or 12.60 pounds below the average of the population of Table I. For 534 men in the second million the average weight is 123.43 pounds, and for 1,292 in both groups it is 125.51, which is 16.03 pounds below the average of the first million. This exceptionally low weight is only in part accounted for by the low average stature of this group. The standard deviation of the groups is 18.57 pounds ± 0.25, which is 1.15 pounds above the average standard deviation for the whole first million. These figures show clearly that the group of defective physical development includes men belonging to races of various sizes, victims

TABLE 178.—*Correlation between height and weight in recruits with defective physical development, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																							
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under	2				2																				
59	68			6	10	13	11	12	3	4	2	1	3	1			1	1							
60	57			5	8	7	7	11	5	3	3	3	1	3			1								
61	37			1	4	13	1	6	3		4	1	2			1	1								
62	43			1	8	11	3	3	1	3	7	1			1	2	1	1							
63	59			8	13	17	10	3	2	3		1	1		1										
64	69			5	4	14	13	8	8	5	6	1	3	1					1						
65	123			2	10	21	30	12	13	8	8	7	3	5	2				2						
66	144			1	11	22	29	16	17	9	7	6	9	4	4	3	1	2		1	1			1	
67	126			1	6	8	19	22	11	15	12	7	9	6	4	2		1		1	1				1
68	154				2	9	21	31	21	18	13	10	11	3	5	2	5	1	1	1					
69	126				1	2	11	24	16	8	18	14	8	10	2	7	1	2	1	1					
70	106				2	1	9	16	9	5	13	15	6	11	5	3	1	5	3		1		1		
71	78						3	9	10	16	9	9	9	5	3			2	1	2					
72	45						2	2	6	5	7	7	3	4	1	1	1	1	1		1	1	1		1
73	25							1	2	1	1	2	4	6	1	1	3	1		1			1		
74	11										1	2	2	1	2	1	1							1	
75	4												2		1			1							
76	5											2	1			1	1								
77	2																1	1							
78	3																1				1			1	
79	4											1							2					1	
80 and over	1																				1				
Total	1,292			30	81	138	169	176	127	103	111	90	77	60	32	24	20	19	12	7	6	1	3	4	2

P_1—
Number of cases: 758.
Height: Mean, 66.34 inches; standard deviation, 4.01±0.07 inch.
Weight: Mean, 128.94 pounds; standard deviation, 18.14±0.31 pound.
Correlation, 0.4600±0.0193.

P_2—
Number of cases: 534.
Height: Mean, 66.91 inches; standard deviation, 3.56±0.07 inch.
Weight: Mean, 123.43 pounds; standard deviation, 18.96±0.39 pound.
Correlation, 0.5008±0.0219.

P_1 and P_2—
Number of cases: 1,292.
Height: Mean, 66.57 inches; standard deviation, 3.84±0.05 inch.
Weight: Mean, 125.51 pounds; standard deviation, 18.57±0.25 pound.
Correlation: 0.4644±0.0147.

TABLE 179.—*Correlation between height and chest circumference (expiration) in recruits with defective physical development, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40
58 and under	2		1						1					
59	68		10	13	10	12	9	9	1	1	1	1	1	
60	56	2	7	10	9	9	8	5	4		1	1		
61	37	1	5	7	7	7	6	2	2					
62	42		6	10	9	7	4	2		2	1	1		
63	60	2	16	15	11	9	3	2		2				
64	67	2	8	13	20	11	8	2	2			1		
65	124	7	17	27	24	20	10	9	5	2	1		2	
66	142	3	20	27	31	20	18	6	7	4	2	1	2	1
67	127	3	10	17	25	24	18	15	7	3		1	3	1
68	154	3	10	28	37	31	18	9	8	3	5	2		
69	124	2	6	15	25	28	18	13	9	4	3		1	
70	105	2	4	16	16	25	17	10	8	2	3	2		
71	76	2	3	12	16	15	7	12	6	1		1	1	
72	45	1	2	6	4	11	8	3	2	4	2	1	1	
73	25		1	1	4	4	8	2	3	1	1			
74	11				1	3	2	2		2	1			
75	4				1	1	1					1		
76	5				1	1	2	1						
77	2					1		1						
78	3								2	1				
79	4						1	1	1	1				
80 and over	1								1					
Total	1,284	30	126	217	251	239	166	106	69	33	21	13	11	2

P_1—
Number of cases: 752.
Height: Mean, 66.34 inches; standard deviation, 4.02 ± 0.07 inch.
Chest circumference (expiration): Mean, 32.15 inches; standard deviation, 2.21 ± 0.04 inch.
Correlation: 0.1792 ± 0.0238.

P_2—
Number of cases: 532.
Height: Mean, 66.90 inches; standard deviation, 3.56 ± 0.07 inch.
Chest circumference (expiration): Mean, 31.43 inches; standard deviation, 2.07 ± 0.04 inch.
Correlation: 0.2482 ± 0.0274.

P_1 and P_2—
Number of cases: 1,284.
Height: Mean, 66.57 inches; standard deviation, 3.84 ± 0.05 inch.
Chest circumference (expiration): Mean, 31.85 inches; standard deviation, 2.18 ± 0.03 inch.
Correlation: 0.1897 ± 0.0181.

of various environmental conditions which have prevented full physical development or the achievement of the physical standards set for military service. A comparison of the distribution of weights of these men and the distribution of weights in the whole populations shows that there is an extraordinary deficiency of heavy men. Thus the ratios for men over 137 pounds are about half the corresponding normal ratios, from 152 upward about one-third the normal ratios. On the other hand, there are proportionately nearly nine times as many men of 102 pounds found in this group as in the population at large, and of men 95–99 pounds there are 11 times as many. By comparing these ratios with those of height, we see that men with defective physical development were prevailingly exceedingly slender men.

(*c*) *Chest circumference.*—The chest circumference in the 752 men found with defective physical development among the first million (Table 179) is 32.15 inches, or 1.07 inches less than the average chest circumference of the whole population of Table II. For the 532 men in the second million the mean is 31.43, and for 1,284 men in the two combined 31.85, or 1.37 less than the average of the total first million. This low mean chest circumference is correlated with the low weight of prevailingly slender men. The standard deviation of the chest circumference in the two groups is 2.18 ± 0.03, or 0.17 inch above the standard deviation of the first million. It appears, then, that the group with defective physical development contains very short and very tall men, all under weight and all of prevailingly small chest circumference and showing a marked variability as contrasted with the population at large. We are not here dealing with a racial trait, but with a mixture of races and of causes having this in common, that they result in men who, in form and proportions, deviate far from military standards.

(*d*) *Robustness.*—Men with defective physical development have an index of build of 28.32, or 2.75 below the average of the United States. Their index of robustness is 29.94, or 9.06 below the average of the United States, placing them in the class of weak constitution. For each inch of the average height there are 1.89 pounds of weight as compared with the normal 2.097 pounds, and 0.479 inch of chest measurement (expiration), as compared with the normal 0.492.

21. UNDERWEIGHT.

The requirements of weight for each unit of height are given in Table 138, p. 297, copied from the physical examination standards.

(*a*) *Stature.*—The average stature of 2,686 men found to be underweight among the first million at mobilization camps is 66.22 inches, or 1.27 less than the average stature of the population of Table I. For 9,943 in the second million men the average stature is 65.30; for 12,129 men, both lots (Table 180), it is 65.50, or 1.99 inches below the mean height. It will be recalled that local boards, during most of the draft period, were instructed not to send to camp men under 61 (later 60) inches in height. It appears, however, from Table 180 that 241 men 59 inches and under were examined at camp and recorded as being underweight. The low average stature is of course due to the fact that weight and stature are closely correlated and the "underweight" is frequently one who has less than average stature. However, the proportion of men 74–77 inches tall was larger than in the population as a whole, showing that there was an exceptionally large number of very tall men who were below the appropriate weight for their stature. Of men 61 inches tall, those rejected for underweight were five times the normal proportion of this stature. Of men 60 inches tall, there were about eight times the normal proportion rejected for underweight, and similarly for the shorter groups. The standard deviation of stature of men found at camps to be underweight for both groups is 3.36 ± 0.01, which is 0.65 inch above the standard deviation for the whole population of the first million. This high variability is clearly due to the fact that underweight, while found especially in the short men, was found also in the very tall men. Consequently underweight men are a very variable group with respect to stature.

(*b*) *Weight.*—The average weight of 2,686 men diagnosed as underweight among the first million at mobilization camps (Table 180) is 114.67 pounds, or 26.87 pounds below the average of the population of Table I. For 9,443 men in the second million it is 109.88; for 12,129 men in both groups together, 110.94, or 30.60 pounds below the average for the first million. The standard deviation for the groups combined is 9.89 ± 0.04 pounds, which is the lowest standard deviation of weight found in the first million men. This result was, of course, to have been anticipated, since we have in this group one selected for a single feature, namely, weight. It constitutes, therefore, so far as weight goes, a very homogeneous lot, but not so homogeneous as would be the case were only the small men considered. The small standard deviation, moreover, combined with the prevailing causes of underweight, indicates that the majority of men concerned belong to the small races.

(*c*) *Chest circumference.*—The average chest circumference of the 2,708 men found to be underweight among the first million at mobilization camps is 30.94 inches, or 2.29 inches less than the average. For the 9,424 men among the second million (Table 181) the chest circumference is 30.32; and for 12,132 men in both lots (Table 181) it is 30.46 or 2.76 inches less than the mean of the whole population. The standard deviation of chest circumference for the two lots is 1.53 ± 0.01 inches, or 0.48 inch less than the average standard deviation in chest circumference for the first million. It appears, then, that the underweight group is characterized by extremes of statures and by slenderness of body, by small chest circumference, and by relatively slight variability in respect to slenderness. The slight variability in chest circumference is, however, partly due to the small average chest circumference. However, if we divide the standard deviation by the mean we find for this, the coefficient of variability, a ratio of 0.56, which is much less than that for the population at large, 0.91. This indicates that the chest circumference of underweight men is not only absolutely but also relatively smaller than that of the population at large. The men of this class had, therefore, an exaggerated and relatively uniform slenderness of build.

(*d*) *Robustness.*—The index of build of men classified as underweight is 25.86, or 5.21 below the average, and the lowest index of the whole United States. Pignet's index is 37.36, or 16.48 below the average of the whole country, placing them in the class of bad constitution. For each inch of the average height there are 1.69 pounds of weight, as compared with the normal 2.097, and 0.465 inch of chest measurement (expiration), as compared with the normal 0.492.

TABLE 180.—*Correlation between height and weight in recruits underweight, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																							
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under	76	6	4	16	18	15	11	5		1															
59	165	4	4	33	40	43	24	15		2															
60	401	8	12	76	98	125	56	19	4	3															
61	626	2	27	99	110	244	119	23	2																
62	956	4	23	130	295	363	104	37																	
63	1,248	5	19	118	323	514	217	50	1			1													
64	1,469	3	16	81	337	535	378	109	5	5															
65	1,594	4	12	74	260	568	480	192	3				1												
66	1,382	1	8	48	169	472	434	227	20	3															
67	1,197	3	3	24	104	305	408	263	71	13	1		1	1											
68	861	1		3	37	182	284	216	94	33		3	1	1	3	3									
69	659	2	1	3	16	68	159	177	145	54	22	7	2	1			1	1							
70	476				4	23	69	116	121	93	31	13	2		1			2	1						
71	334				3	9	22	49	81	85	41	32	6	4		1				1					
72	293					1	8	16	64	73	61	38	26	5	1										
73	160				1	1		2	25	47	34	22	14	11			1	1			1				
74	120						1		11	20	16	29	22	9	7	2	1	2							
75	63								3	7	6	6	12	15	6	3	2	1		1					1
76	38							1	1		4	5	6	5	5	2	4	5							
77	10										1		2	2	1	2	1	1							
78																									
79	1																		1						
Total	12,129	43	129	705	1,815	3,468	2,774	1,517	651	439	217	156	95	54	24	13	10	13	2	2	1				1

P_1—
Number of cases: 2,686.
Height: Mean, 66.22 inches; standard deviation, 3.51±0.03 inch.
Weight: Mean, 114.67 pounds; standard deviation, 11.61±0.11 pound.
Correlation: 0.7339±0.0060.

P_2—
Number of cases: 9,443.
Height: Mean, 65.30 inches; standard deviation, 3.29±0.02 inch.
Weight: Mean, 109.88 pounds; standard deviation, 9.07±0.05 pound.
Correlation: 0.6873±0.0037.

P_1 and P_2—
Number of cases: 12,129.
Height: Mean, 65.50 inches; standard deviation, 3.36±0.01 inch.
Weight: Mean, 110.94 pounds; standard deviation, 9.89±0.04 pound.
Correlation: 0.6970±0.0031.

TABLE 181.—*Correlation between height and chest circumference (expiration) in recruits underweight, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.											
		28 and under.	29	30	31	32	33	34	35	36	37	38	39
58 and under	76	9	14	22	18	11	1	1					
59	168	8	35	48	31	23	17	3	2		1		
60	399	34	79	112	90	56	14	13					1
61	622	57	142	181	150	66	19	7					
62	951	102	220	278	211	95	32	9	1				3
63	1,252	113	277	410	274	121	45	9	1				2
64	1,470	140	314	472	315	153	43	20	11		1		1
65	1,598	161	343	478	371	166	53	16	4			3	3
66	1,387	98	278	431	346	159	52	12	8				3
67	1,196	101	220	383	274	149	41	14	10			1	3
68	860	54	149	248	221	119	40	13	8	1		1	6
69	662	33	95	185	175	107	34	18	9	2	1		3
70	477	21	53	121	121	94	40	14	9		2		2
71	333	9	30	57	93	81	29	17	10	1	1		5
72	291	5	14	46	71	65	51	27	7	2			3
73	159		9	22	40	40	32	9	3	3			1
74	119		2	11	20	36	26	17	5	1	1		
75	63		3	3	7	14	18	9	6	2			1
76	38	1	2	6	8	4	6	5	3	3			
77	9			2	1		2	3	1				
78													
79	2						1		1				
Total	12,132	946	2,279	3,516	2,837	1,559	596	236	99	15	7	5	37

P_1—
Number of cases: 2,708.
Height: Mean, 66.20 inches; standard deviation, 3.51±0.03 inch.
Chest circumference (expiration): Mean, 30.94 inches; standard deviation, 1.72±0.02 inch.
Correlation: 0.2843±0.0119.

P_2—
Number of cases: 9,424.
Height: Mean, 65.30 inches; standard deviation, 3.29±0.02 inch.
Chest circumference (expiration): Mean, 30.32 inches; standard deviation, 1.44±0.01 inch.
Correlation: 0.2312±0.0066.

P_1 and P_2—
Number of cases: 12,132.
Height: Mean, 65.50 inches; standard deviation, 3.36±0.01 inch.
Chest circumference (expiration): Mean, 30.46 inches; standard deviation, 1.53±0.01 inch.
Correlation: 0.2459±0.0058.

22. OVERWEIGHT AND OBESITY.

Table 138 specifies the standard weights for each height and the minimum weight for each height which will permit of acceptance. There was a maximum weight for each stature, and this defined the overweight and obese men. The overweight men, however, reached such extremes that it was not feasible to tabulate all of the classes of weight.

(*a*) *Stature*.—The mode of stature of recruits as far as tabulated stands at 69 inches or 1½ inches above the mode of the whole population as shown in Table I. The group is also clearly a more variable one than the population as a whole.

(*b*) *Weight*.—The average weight of the 271 men found with overweight and obesity among the first million at mobilization camps is not calculated because, by the method of tabulating, more than half of the men placed in this class were grouped in the category "200 pounds and over." For the same reason the standard deviation was not calculated.

(*c*) *Chest circumference*.—The average chest circumference of the 271 men found with overweight and obesity among the first million at mobilization camps is 36.92 inches, or 3.70 inch above the average chest circumference of the average male population at large. Owing to the fact that in tabulating chest circumference, 39 inches and over were massed into one class, the standard deviation of chest circumference has not been calculated.

(*d*) *Robustness*.—As stated above, the weight of men classified as overweight or obese was grouped in many cases as 200 pounds and over, and as a result the average weight could not be accurately determined. Hence the indices of build and robustness could not be calculated.

23. CRYPTORCHIDISM, HYPOSPADIA, ANORCHISM, AND MONORCHISM.

This group is a heterogeneous one, comprising some cases of accidental mutilation and others of imperfect development of the genitalia, owing to their retention of an infantile condition.

(*a*) *Stature*.—The average stature of 1,808 men found with one of these defects among the first million is 67.34 inches, which is only 0.15 inch less than the average stature of the whole population of Table I. For 3,140 men in the second million the stature is 67.49, and for 4,948 men, both lots together (Table 182), 67.44, or 0.05 inch below the mean height for the first million. The standard deviation for the two lots is 2.81 ± 0.02, which is 0.10 above the standard deviation of the whole first million. It appears, therefore, that in respect to stature, persons with the named defects, though these are of an infantile or undeveloped nature, are typical of the whole population. They are, however, slightly more variable in stature than the rest of the population, and this seems to be due to the fact that there is an excess in this group of very short men under 60 inches and of men 70–75 inches tall, and a corresponding deficiency in the middle statures of 67 inches. This indicates that there is a slight association with the effects due to internally secreting glands, which influence both stature and the development of the genitalia.

Table 182.—*Correlation between height and weight in recruits with cryptorchidism, anorchism, monorchism, and hypospadia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																								
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	205–209
58 and under	14			4			1		1	2	2	2	1		1											
59	6				2		1	1	1		1															
60	31				2	3	7	8	2	3	2			2	1	1										
61	51	1			3	5	6	14	8	2	4	2	2	2			1	1								
62	96	1			4	6	17	15	13	12	12	7	3	3	2				1							
63	202		1	1	4	9	23	30	26	30	19	18	12	12	4	5	4	1					1	2		
64	287		1	1		6	26	40	51	54	33	22	18	13	7	3	4	1	3	1	3					
65	476			2	8	7	26	48	66	80	60	64	44	20	21	14	5	5	2	2	1	1				
66	634				2	5	20	40	75	98	86	82	74	48	32	25	21	6	9	3	6	1	1			
67	695				2	4	16	32	71	89	91	86	88	66	48	34	26	16	10	9	1	2	2	1		1
68	723				1	5	7	19	48	71	88	97	119	62	67	48	39	15	13	5	7	7	2	1	2	
69	591						3	14	30	36	71	74	82	73	61	54	28	16	9	6	11	3	7	4	8	1
70	482					1	2	4	15	27	43	43	89	48	61	47	34	24	14	9	8	2	7		3	1
71	333						3	2	5	10	17	35	47	44	42	34	25	23	15	8	5	9	3	2	3	1
72	172									5	12	20	24	19	16	23	20	12	5	3	4	1	2	3	3	
73	81								2		2	4	9	9	10	11	10	7	6	2	5	2	1	1		
74	42											2	6	2	4	3	5	4	11	1	2	1	1			
75	21									2	1			2	2	2	2	1	1	1	2	2	1		2	
76	6									1					1	1			1		1				1	
77	3														1	1			1							
78	1																	1								
79	1																								1	
Total	4,948	2	2	8	28	51	158	267	414	522	544	558	618	425	381	306	224	133	101	50	56	31	28	14	23	4

P_1—
Number of cases: 1,808.
Height: Mean, 67.34 inches; standard deviation, 2.80±0.03 inch.
Weight: Mean, 140.81 pounds; standard deviation, 18.61±0.21 pound.
Correlation: 0.5186±0.0116.

P_2—
Number of cases: 3,140.
Height: Mean, 67.49 inches; standard deviation, 2.81±0.02 inch.
Weight: Mean, 139.93 pounds; standard deviation, 17.48±0.15 pound.
Correlation: 0.4666±0.0094.

P_1 and P_2—
Number of cases: 4, 948.
Height: Mean, 67.44 inches; standard deviation, 2.81±0.02 inch.
Weight: Mean, 140.25 pounds, standard deviation, 17.91±0.12 pound.
Correlation: 0.4867±0.0073.

TABLE 183.—*Correlation between height and chest circumference (expiration) in recruits with cryptorchidism, anorchism, monorchism, and hypospadia, first (P_1) and second (P_2) million draft recruits.*

Height, in inches.	Total.	Chest, in inches.															
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
58 and under	14			1	2	4	4	1		1						1	
59	6		1		1	2	1		1								
60	31		2	5	6	10	4	2		1			1				
61	51			10	10	12	8	4	4	2			1				
62	96	3	6	9	20	19	14	11	11	1	1	1					
63	202	5	15	16	37	42	35	26	12	9		3	2				
64	290	3	12	35	60	55	41	46	17	6	6	4	5				
65	474	3	19	51	75	113	77	66	28	24	8	4	4	1		1	
66	633	1	13	46	105	138	121	90	67	29	10	3	7	2	1		
67	693	1	15	49	108	145	134	109	68	38	12	5	6	2		1	
68	723		8	40	94	148	128	135	84	48	18	10	7	1		1	1
69	589	1	15	23	61	115	123	119	56	34	24	5	10	1			2
70	482		9	17	47	81	102	86	61	37	21	14	4	1	2		
71	333	1	5	11	27	48	71	64	43	33	15	8	6				1
72	171	1	1	11	16	26	38	42	15	8	7	2	2	1			1
73	81		1	2	6	8	12	21	14	9	3	5					
74	42			1	2	8	5	10	6	5	4	1					
75	21				1	4	5		4	1	1	3	1				1
76	6			1	1	1			2			1					
77	3						2			1							
78	1						1										
79	1					1											
Total	4,943	19	122	328	679	980	926	832	493	287	130	69	56	9	3	4	6

P_1—
Number of cases: 1,808.
Height: Mean, 67.34 inches; standard deviation, 2.80±0.03 inch.
Chest circumference (expiration): Mean 33.18 inches; standard deviation, 2.05±0.02 inch.
Correlation: 0.2299±0.0150.

P_2—
Number of cases: 3,135.
Height: Mean, 67.49 inches; standard deviation, 2.82±0.02 inch.
Chest circumference (expiration): Mean, 32.95 inches; standard deviation, 2.13±0.02 inch.
Correlation: 0.2029±0.0115.

P_1 and P_2—
Number of cases: 4,943.
Height: Mean, 67.44 inches; standard deviation, 2.81±0.02 inch.
Chest circumference (expiration): Mean, 33.03 inches; standard deviation, 2.10±0.01 inch.
Correlation: 0.2107±0.0092.

(*b*) *Weight.*—Of the 1,808 men found with these defects among the first million, the average weight is 140.81 pounds, or 0.73 below the average of the population of Table I. For 3,140 men in the second million, the average is 139.93, and for 4,948 men in both groups (Table 182), 140.25, which is 1.29 pounds below the average weight of the whole of the first million. The standard deviation in weight for both lots is 17.91 ± 0.12, or 0.49 pounds above the standard deviation in weight of the whole population. This result indicates that the group is a rather heterogeneous one so far as weight goes, but characterized on the whole by slightly less than normal weight, despite the fact that the average stature is practically normal. Men with these defects are therefore on the whole slightly slenderer than the average population. The high standard deviation indicates that the defect is more apt to be found in lighter and heavier men than in men of more nearly normal weight. This accords again with the view that these defects are associated with glandular disturbances which are well known to influence weight.

(*c*) *Chest circumference.*—The average chest circumference in the 1,808 men found with these defects among the first million at mobilization camps (Table 183) is 33.18, or 0.04 inch below the average of the population studied. For the 3,135 men found with these defects in the second million the average chest circumference is 32.95 inches, or for 4,943 men in both lots together 33.03, or 0.19 inch below the mean chest circumference of the first million men.

The standard deviation of the chest circumference for both lots is 2.10 ± 0.01. This is practically the same as the standard deviation for the whole population. We conclude, therefore, that the part of the population with the named defect is very like the population at large, except that it is slightly underweight and slender and that this condition affects different parts of the normal frequency distribution nearly uniformly, so that there is no marked selection of a particular class.

(*d*) *Robustness.*—The index of build of men with cryptorchidism, hypospadia, anorchism, and monorchism is 30.84, or 0.23 less than the average of the whole United States. Pignet's index is 21.83, or 0.95 above the average of the United States, which places them in the class of good constitution. For each inch of the average height there are 2.08 pounds of weight, as compared with the normal 2.097, and 0.490 inch of measurement (expiration), as compared with the normal 0.492.

V. SUMMARY: BODILY DIMENSIONS IN RELATION TO DISEASES.[a]

The foregoing sections have revealed the fact that populations selected because of the possession of some common disease or defect have in many cases proportions which deviate widely from those of the population of recruits in general.

The findings in this respect are summarized in Tables 184–192, and in Plates XXXIX–XLI. In Plate XXXIX the deviations in stature from the average are given for the populations detected with each of 23 defects. This figure shows that the greatest deviation above the average stature is found in that population which has varicose veins; next that which has varicocele;

[a] It will be noted that in what follows, the averages of height, weight, and chest at expiration are those taken only from men showing the various defects and diseases referred to in Table 187. For the average of height, weight, and chest circumference of the whole population, reference has to be made to Tables I, II, and III.

next that characterized by pulmonary tuberculosis; next the two forms of goiter, and then certain forms of valvular disease of the heart, tachycardia, and hemorrhoids. On the other hand, striking deviations below the average in stature are found in populations classified as underweight, defective physical development, or as possessing astigmatism, myopia, hyperopia, asthma, defective and deficient teeth, and flat feet. The reasons for the deviations in these representative populations are treated in the corresponding sections above.

Plate XL gives the deviations in weight of various populations, characterized by having particular diseases or defects, from the average weight found in the entire population of recruits. Here, far more than in height, most of the deviations are below the normal. That is because almost all of the diseases and defects tend to interfere with bodily functioning and to reduce the weight. In the case of varicose veins, however, the defect itself is probably largely induced by excessive stature, and so we find persons with this defect to be on the average far above the mean weight of the whole population. In the case of simple goiter, the excess of weight found in the population is merely associated with the excess of stature that this population shows. The "build" is not abnormal. (See Table 189.) On the other hand, in pulmonary tuberculosis and various valvular diseases of the heart there is clear evidence that deficiency of weight is determined by the diseases. In the case of the population with defective and deficient teeth, the reduction in weight is possibly influenced by inadequate nutrition. Other populations whose weight is below the average are those characterized by eye defects, but these are populations composed to an unusual extent of persons belonging to races characterized by short stature.

Plate XLI gives the distribution in chest circumference of the populations characterized by different defects and diseases from the mean chest circumference of the whole population of recruits. Here, again, most of the deviations are in deficiency. In the case of varicose veins the population is characterized by great build, excessive weight, and thus also of excessive chest girth. In the case of the population characterized by asthma there is reason for thinking that the excess chest circumference is induced by the disease itself. Passing to the populations characterized by abnormally small chest measurements, we find, in addition to the groups of underweight and defective physical development, the group characterized by pulmonary tuberculosis, and, following that, various groups characterized by organic and functional diseases of the heart. Here also are the populations with errors of refraction whose small chest measurement is correlated with general small size on account of the small races which form so large a part of these populations.

Plate XLII is drawn up in a similar manner to Plate XIV, page 177. Here an attempt is made to show the interrelation of stature, weight, and chest circumference (expiration) as associated with certain diseases or defects.

Passing downward the first heavy horizontal line shows the average stature of the first million draft recruits, while the second and third shows the quotients of the average weight and chest circumference (expiration) divided by the height. It is apparent at once that the average stature of the men with certain diseases or defects is above that of the population of recruits in general. Included in this number are defects of the veins, namely, varicose veins, varicocele, and hemorrhoids; tuberculosis; organic and functional cardiac conditions, namely, mitral insufficiency, simple tachycardia, cardiac hypertrophy, mitral stenosis, and valvular diseases of the heart unclassified; and, finally, exophthalmic goiter and simple goiter. Only one of these conditions, varicose veins, shows both a proportional weight and chest circumference (expiration) above the average. Here the proportional weight stands well up above, while that for the chest circumference (expiration) reaches the average line. Simple goiter also has a proportional weight slightly above the average, but the proportional chest circumference (expiration) is below it. For all of the other conditions with excessive stature the proportional weight and chest circumference (expiration) are well below the average, and it is apparent that the men with these diseases or defects are on the average tall, slender, and small-chested. This is most marked in cases of tuberculosis. For men with hypertrophied tonsils the stature, the proportional weight, and chest circumference (expiration) are practically the same as the average of the population of recruits in general. On the other hand, the proportional weight and chest circumference (expiration) of recruits with hernia and relaxed inguinal rings are below the average, and the same is true of recruits with congenital genital defects, as well as of those with defective and deficient teeth.

The build of the asthmatic cases is of considerable interest, since it is apparent that the stature is considerably below the average, as is also the proportional weight, but the greater proportional chest circumference (expiration) is much above the average. This latter condition is due no doubt to the effects of the disease itself. The three refractive errors, hyperopia, myopia, and astigmatism, have proportional weight below the average, with proportional chest circumference (expiration) slightly above.

In figure 2 of Plate XLII the weight is taken as the controlling factor, while in the second and third sections below there is shown the quotient of the weight divided by the height, and the weight divided by the chest circumference (expiration). As shown in figure 1, simple goiter affects weight less than exophthalmic goiter; consequently the quotient of the weight divided by the chest circumference (expiration) is greater for the patient with simple goiter than for those with exophthalmic goiter. On the other hand, since the chest circumference (expiration) for asthmatics has increased while the proportional weight has decreased, the quotient of the weight divided by the chest circumference (expiration) is much reduced.

In figure 3 the chest circumference (expiration) is taken as the controlling factor, while in the second and third sections below there is shown the quotient of the chest circumference (expiration) divided by the height and the weight divided by the chest circumference (expiration). It is again apparent here that men with varicose veins have a well-developed chest, are above the average in stature, and have great proportional weight. It is also apparent that for asthmatics the chest circumference (expiration) has increased out of proportion to the stature and weight. Further study of Plate XLII will reveal many interesting facts showing the interrelation of stature, weight, and chest circumference (expiration) as associated with the special diseases or defects considered.

Table 189 summarizes the relations of index of build and index of robustness (Pignet) [20] associated with the various diseases. The heavy build of many recruits with errors of refraction is striking; they belong to stocky races. The dependence of flat-foot and varicose veins on build is fairly clear. It is noteworthy that recruits with varicose veins stand at the top of the list for robustness. That recruits with asthma stand so high is due to their large chest girth. The shape of recruits with defective development of the genitalia is probably due to the influence of the sex glands on development. The heart conditions are associated with a low average robustness, as indeed also a slender build.

The variability of the stature of recruits with various diseases presents many points of interest (Table 190). In general it appears that, when the aberrant stature that is associated with a disease is so associated because tall or short races are especially apt to be affected by the disease, the variability is low. Thus, recruits with goiter have low stature-variability. But goiter appears prevailingly in the Northwestern States which are inhabitated by tall "Nordics." We have seen also that short races are especially apt to have defective and deficient teeth; and so the stature of the class shows less variability than the average. On the other hand, the great variability in stature of recruits with myopia is due, as Plate XXXIII shows, to the fact that there are two groups in the lot—a group of racially short stature (largely Polish Jews) and of other recruits of average stature. Likewise cardiac hypertrophy comprises persons of normal stature and also a group of especially tall persons. On the other hand, underweight occurs in tall and short races and is due to a diversity of causes, and the resulting group is very variable in stature. The high variability of the group of cryptorchidism, etc., is partly due to the heterogeneity of the group.

The variability of the weight of recruits with the various defects and diseases is shown in Table 191. This table combined with Table 190 shows that men with varicose veins are of varied races, but generally tall and heavy. Thus stature and weight are not caused by the condition of the veins; for, so far as stature goes, the group is less variable than the average; and as for weight it is only a little more variable (as measured by the coefficient of variation). A tolerably uniformly tall and heavy lot of men have become victims of varicose veins; the disease is induced in part by the build. Varicocele is likewise found in tall and gaunt men of the Nordic type, and such defectives are tolerably uniform in this respect.

In other cases the variability of weight is due to the composite constitution of the group. Thus, as has already been pointed out, the myopics are composed both of the average population and also a special lightweight (and short) group. The asthmatics seem to comprise a group of normal weight and one of underweight (probably due to the disease in its advanced stages). Men with flat-foot are of somewhat less than average stature, very heavy on the average, but comprising some small and light men.

The clearest case of an uniformly low variability induced by disease is that of pulmonary tuberculosis. A group of abnormally tall persons of average variability in stature shows an abnormally and extraordinarily uniform low weight. Low weight is one of the principal symptoms of the disease. Again, mitral stenosis is found in men of average stature but far below average weight; in them stature is not affected, but weight is abnormally low, and the group is remarkably uniform in this respect.

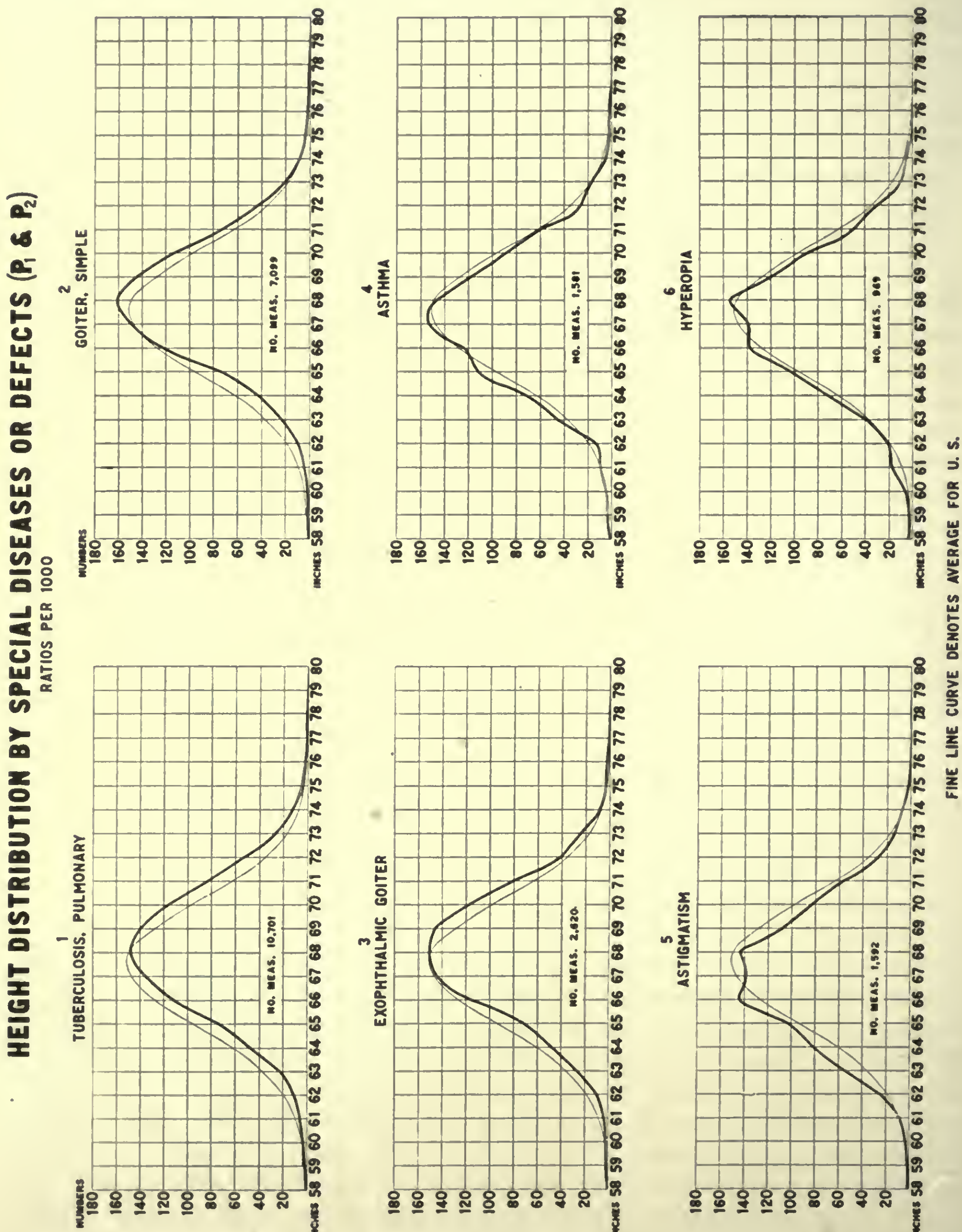

HEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)
RATIOS PER 1000
1 TUBERCULOSIS, PULMONARY
NO. MEAS. 10,701
2 GOITER, SIMPLE
NO. MEAS. 7,099
3 EXOPHTHALMIC GOITER
NO. MEAS. 2,620
4 ASTHMA
NO. MEAS. 1,581
5 ASTIGMATISM
NO. MEAS. 1,592
6 HYPEROPIA
NO. MEAS. 969
NUMBERS
INCHES
FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XXXI.

HEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

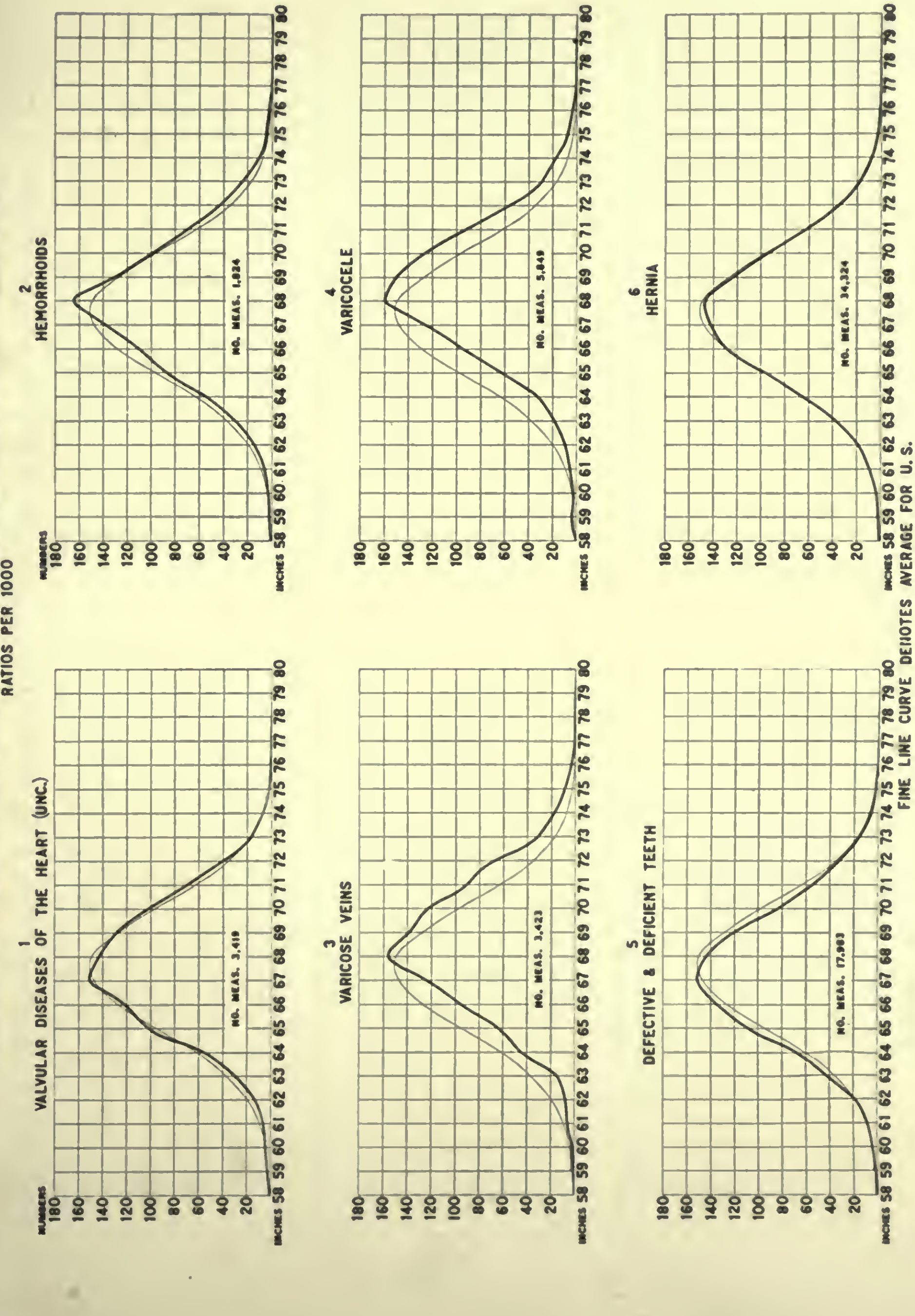
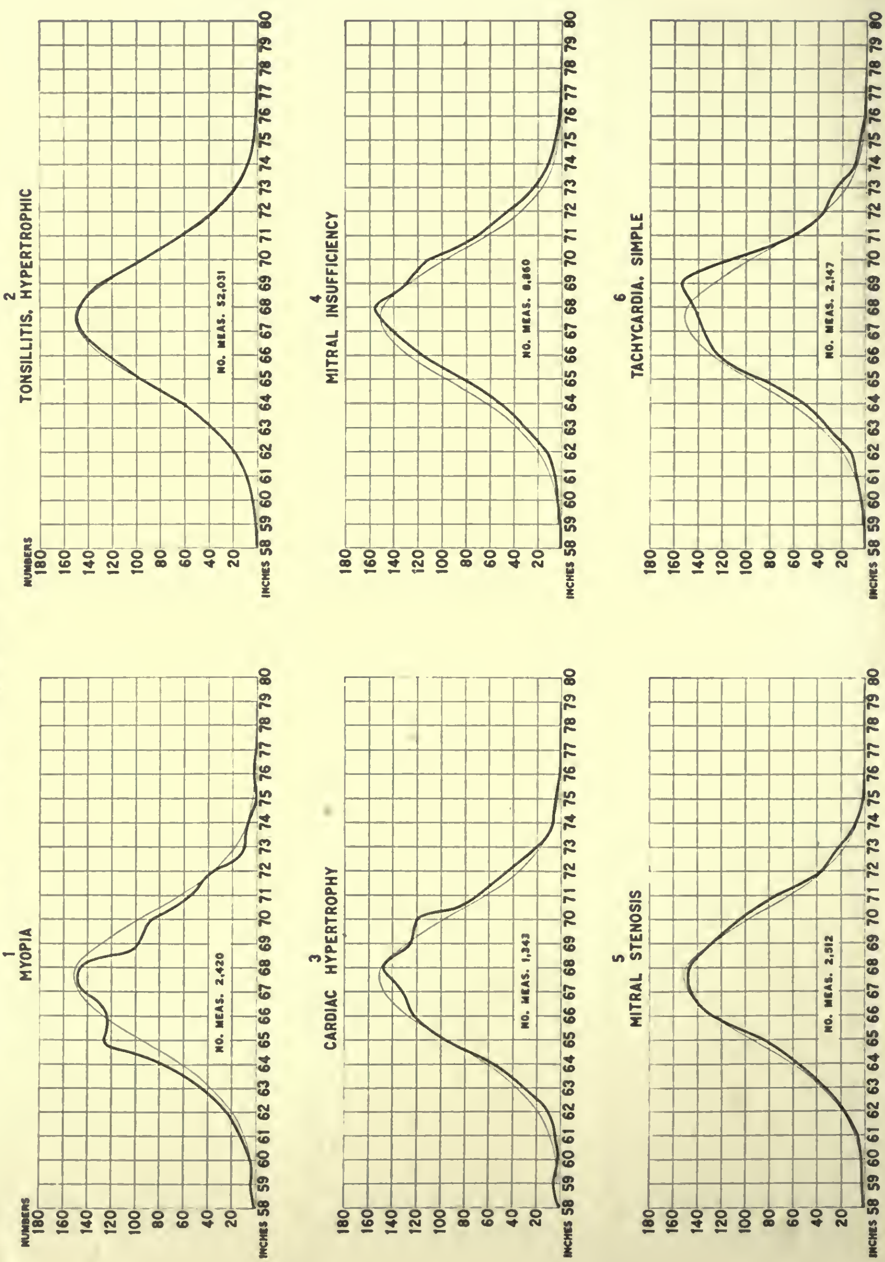


PLATE XXXII.

HEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XXXIII.

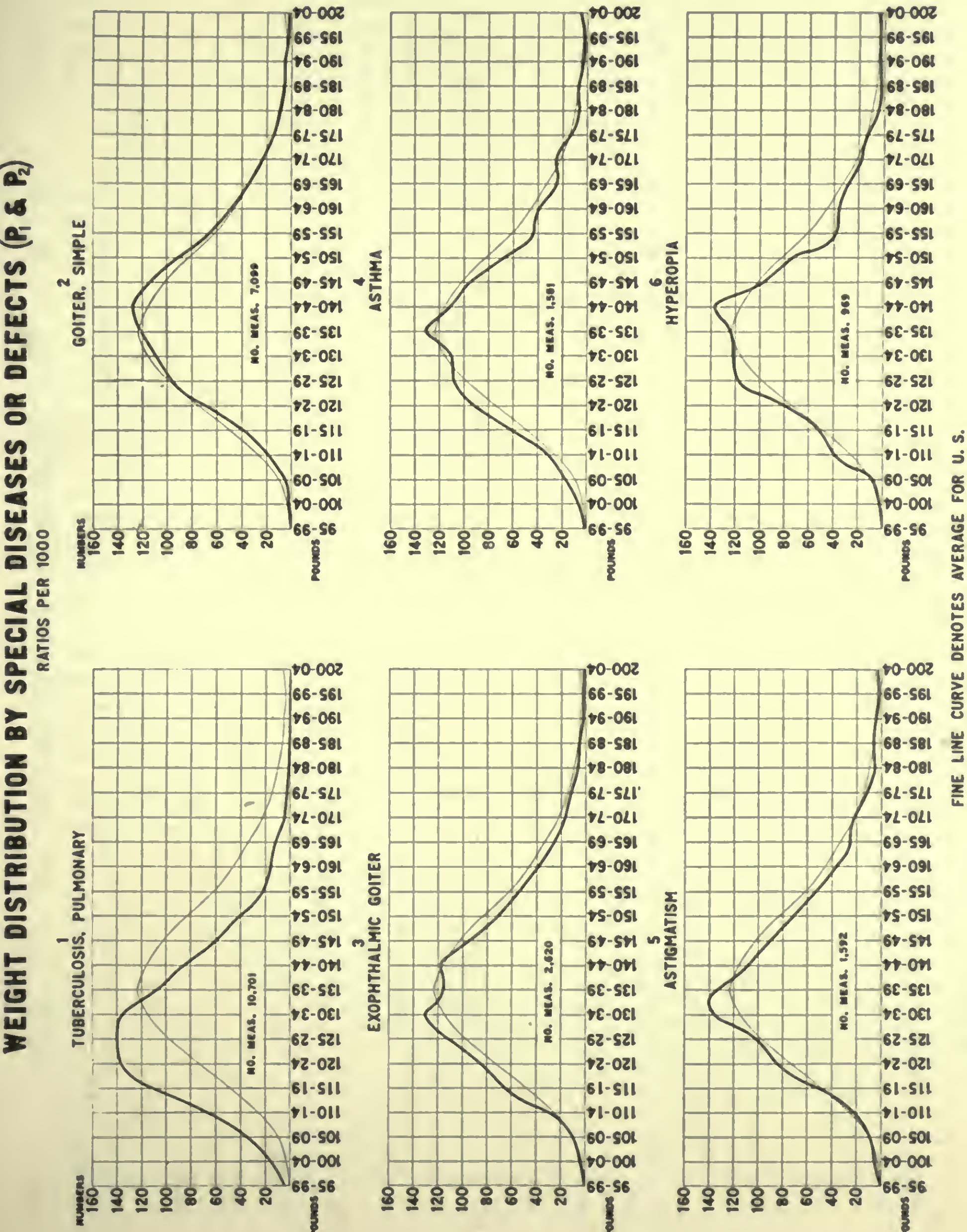
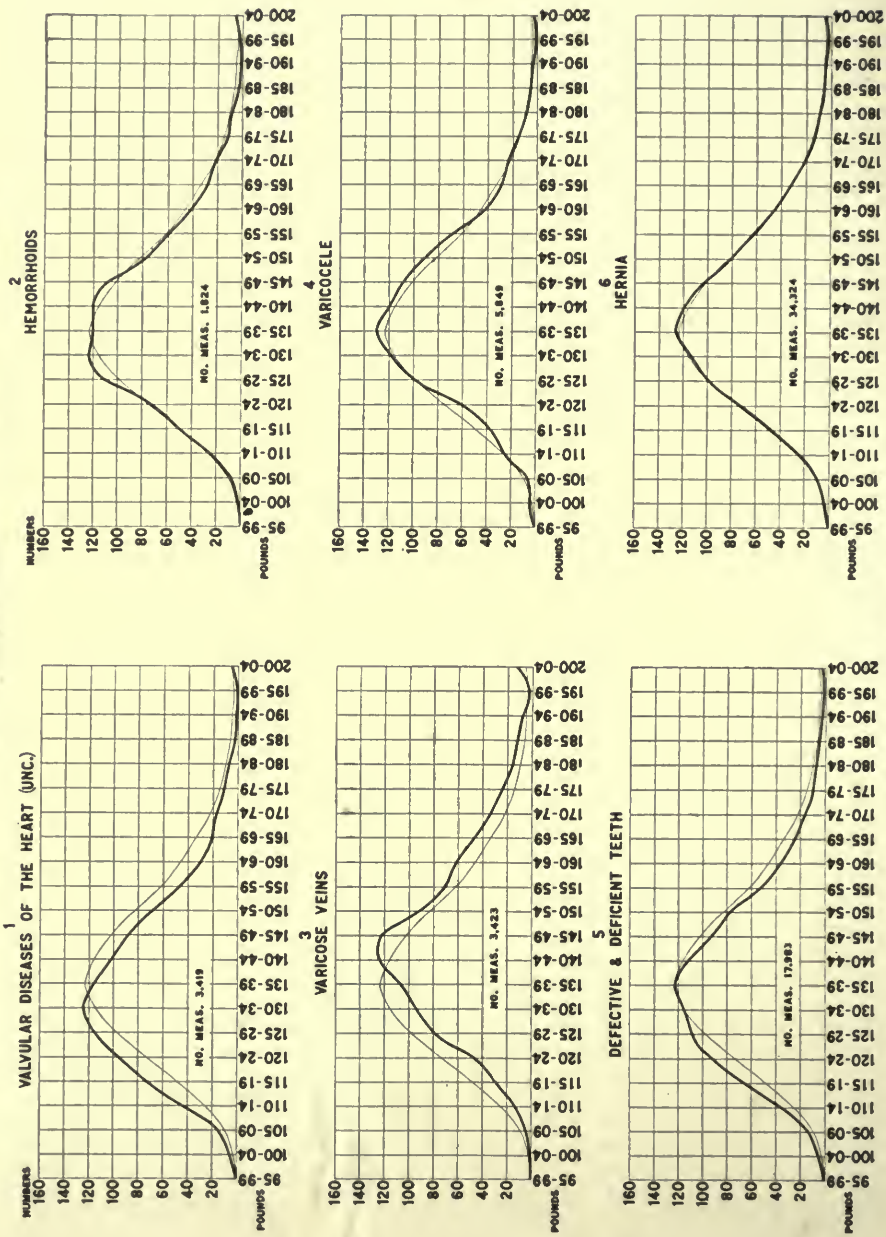

WEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)
RATIOS PER 1000
1 TUBERCULOSIS, PULMONARY
NO. MEAS. 10,701
2 GOITER, SIMPLE
NO. MEAS. 7,099
3 EXOPHTHALMIC GOITER
NO. MEAS. 2,620
4 ASTHMA
NO. MEAS. 1,581
5 ASTIGMATISM
NO. MEAS. 1,592
6 HYPEROPIA
NO. MEAS. 969
NUMBERS
POUNDS
160 140 120 100 80 60 40 20
95-99 100-04 105-09 110-14 115-19 120-24 125-29 130-34 135-39 140-44 145-49 150-54 155-59 160-64 165-69 170-74 175-79 180-84 185-89 190-94 195-99 200-04
FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XXXIV.

WEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

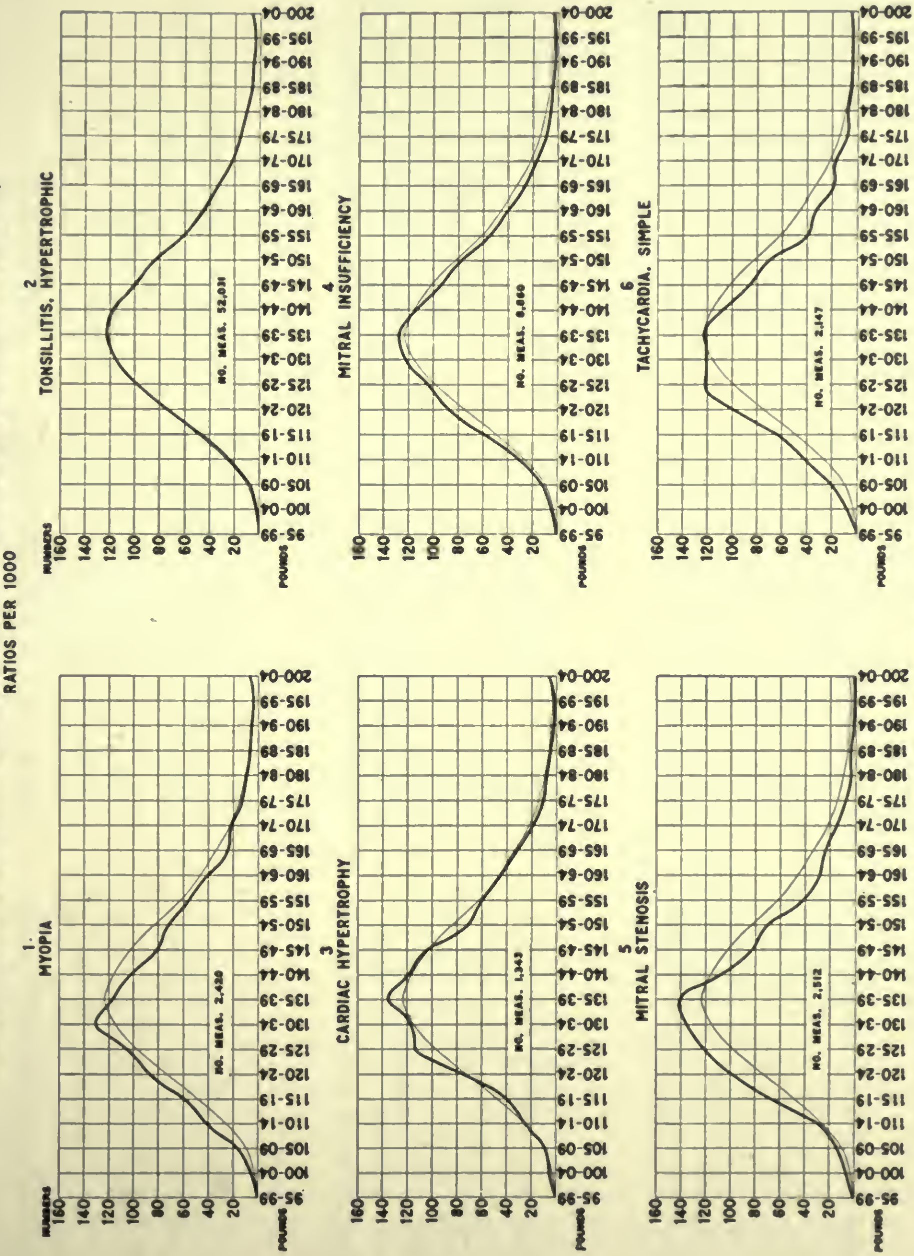
RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XXXV.

WEIGHT DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

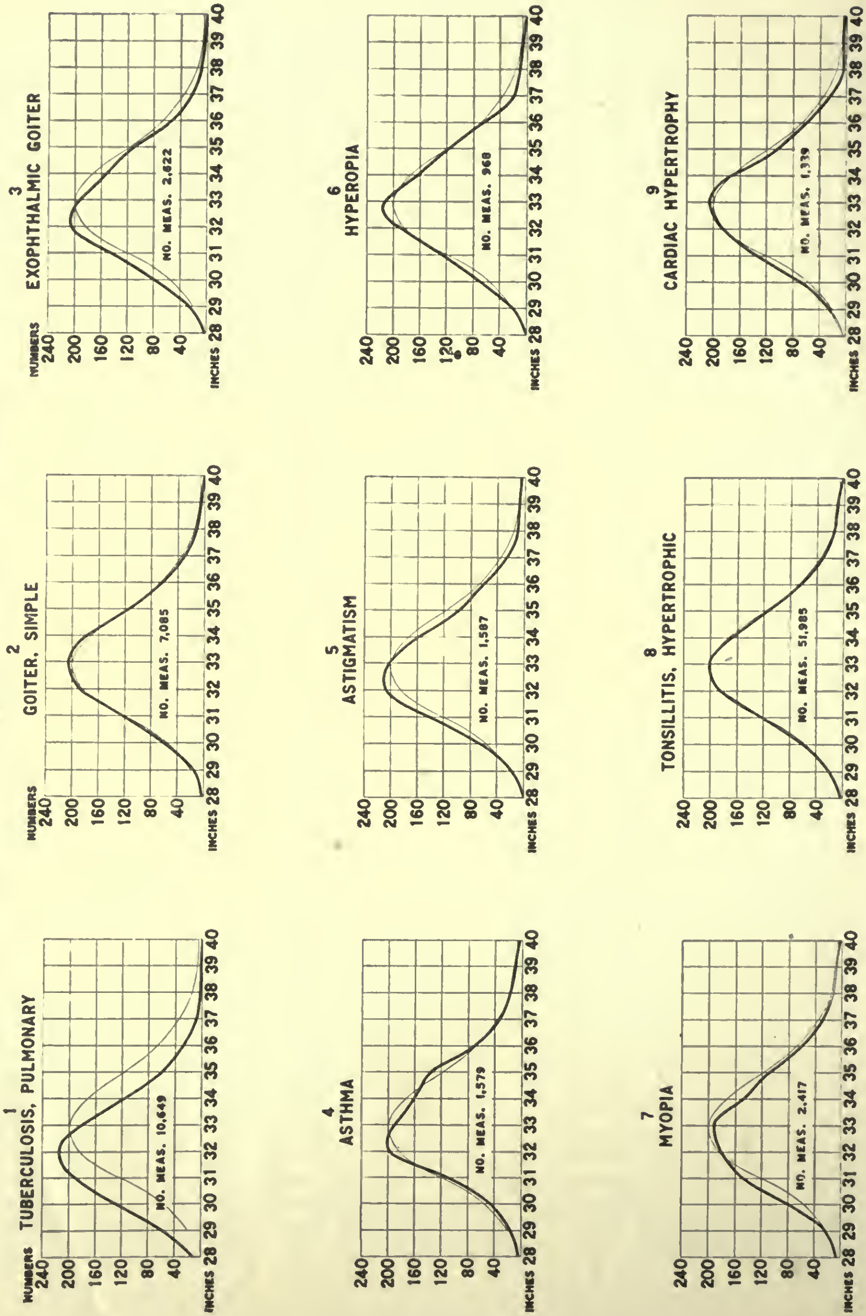


FINE LINE CURVE DENOTES AVERAGE FOR U. S.

PLATE XXXVI.

CHEST (EXP.) DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

RATIOS PER 1000

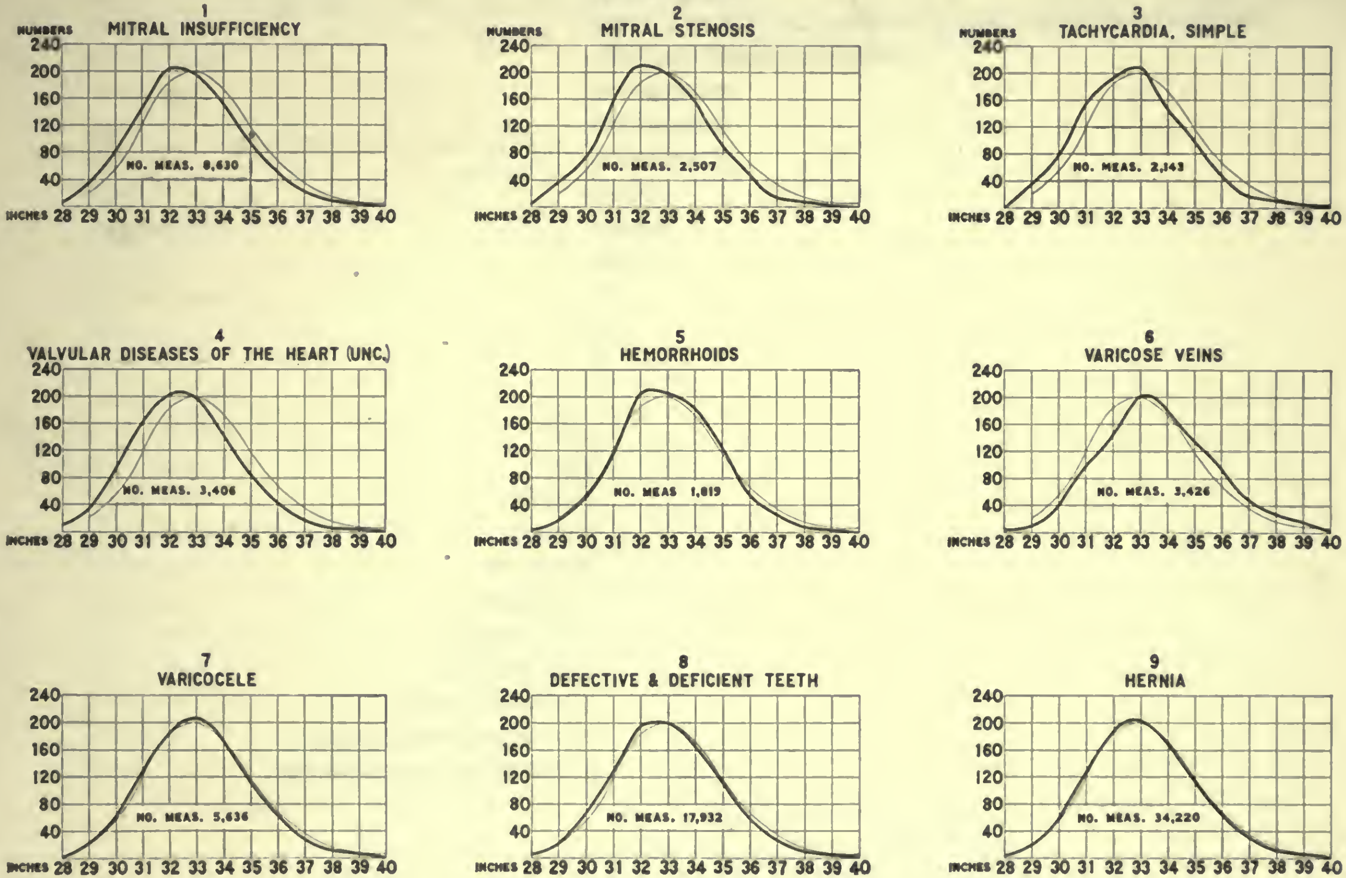


FINE LINE CURVE DENOTES AVERAGE FOR U.S.

PLATE XXXVII.

CHEST (EXP.) DISTRIBUTION BY SPECIAL DISEASES OR DEFECTS (P_1 & P_2)

RATIOS PER 1000



FINE LINE CURVE DENOTES AVERAGE FOR U.S.

PLATE XXXVIII.

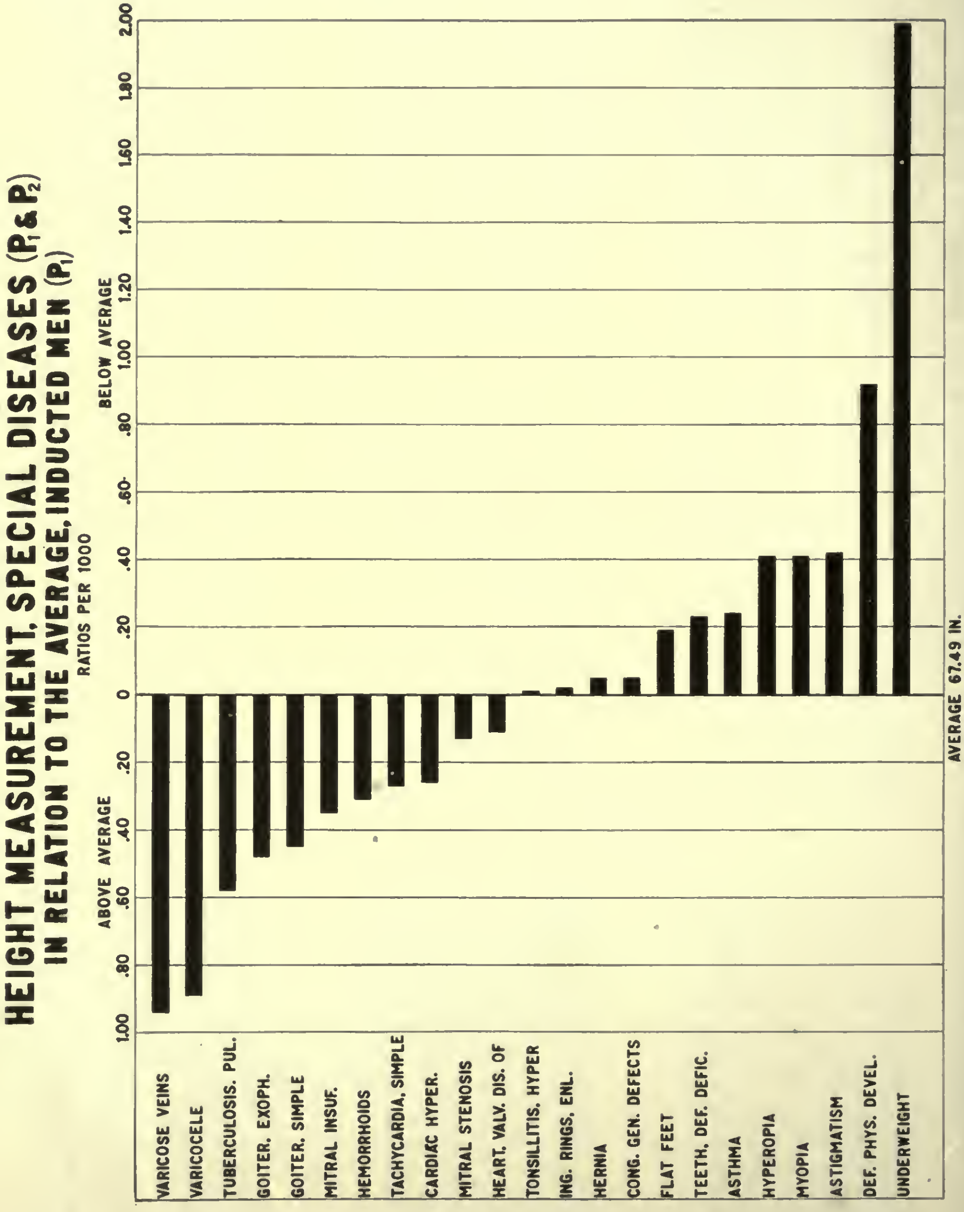

HEIGHT MEASUREMENT, SPECIAL DISEASES (P_1 & P_2)
IN RELATION TO THE AVERAGE, INDUCTED MEN (P_1)
RATIOS PER 1000
ABOVE AVERAGE
BELOW AVERAGE
1.00
.80
.60
.40
.20
0
.20
.40
.60
.80
1.00
1.20
1.40
1.60
1.80
2.00
VARICOSE VEINS
VARICOCELE
TUBERCULOSIS. PUL.
GOITER. EXOPH.
GOITER. SIMPLE
MITRAL INSUF.
HEMORRHOIDS
TACHYCARDIA, SIMPLE
CARDIAC HYPER.
MITRAL STENOSIS
HEART, VALV. DIS. OF
TONSILLITIS, HYPER
ING. RINGS, ENL.
HERNIA
CONG. GEN. DEFECTS
FLAT FEET
TEETH, DEF. DEFIC.
ASTHMA
HYPEROPIA
MYOPIA
ASTIGMATISM
DEF. PHYS. DEVEL.
UNDERWEIGHT
AVERAGE 67.49 IN.

PLATE XXXIX.

WEIGHT MEASUREMENT. SPECIAL DISEASES (P_1 & P_2) IN RELATION TO THE AVERAGE, INDUCTED MEN (P_1)

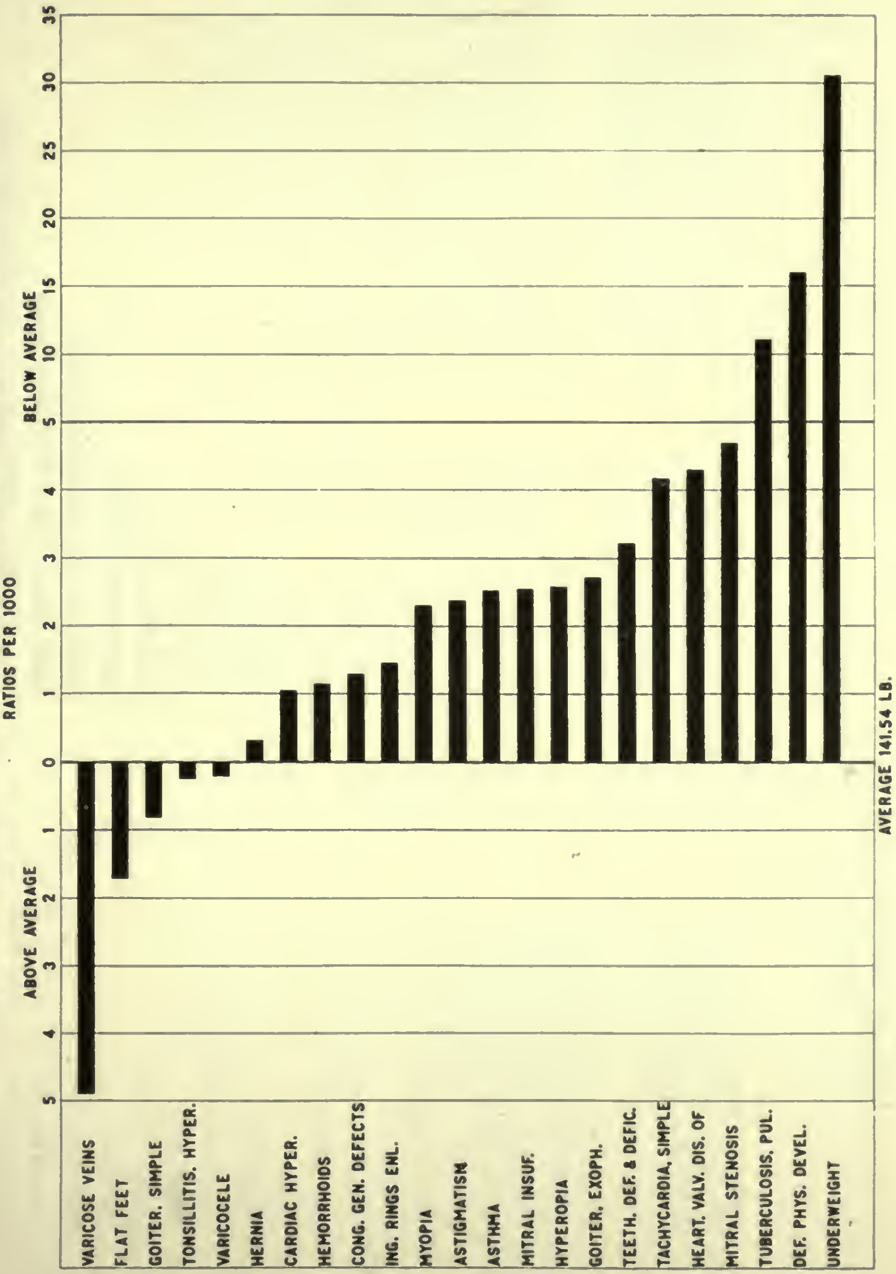


PLATE XL.

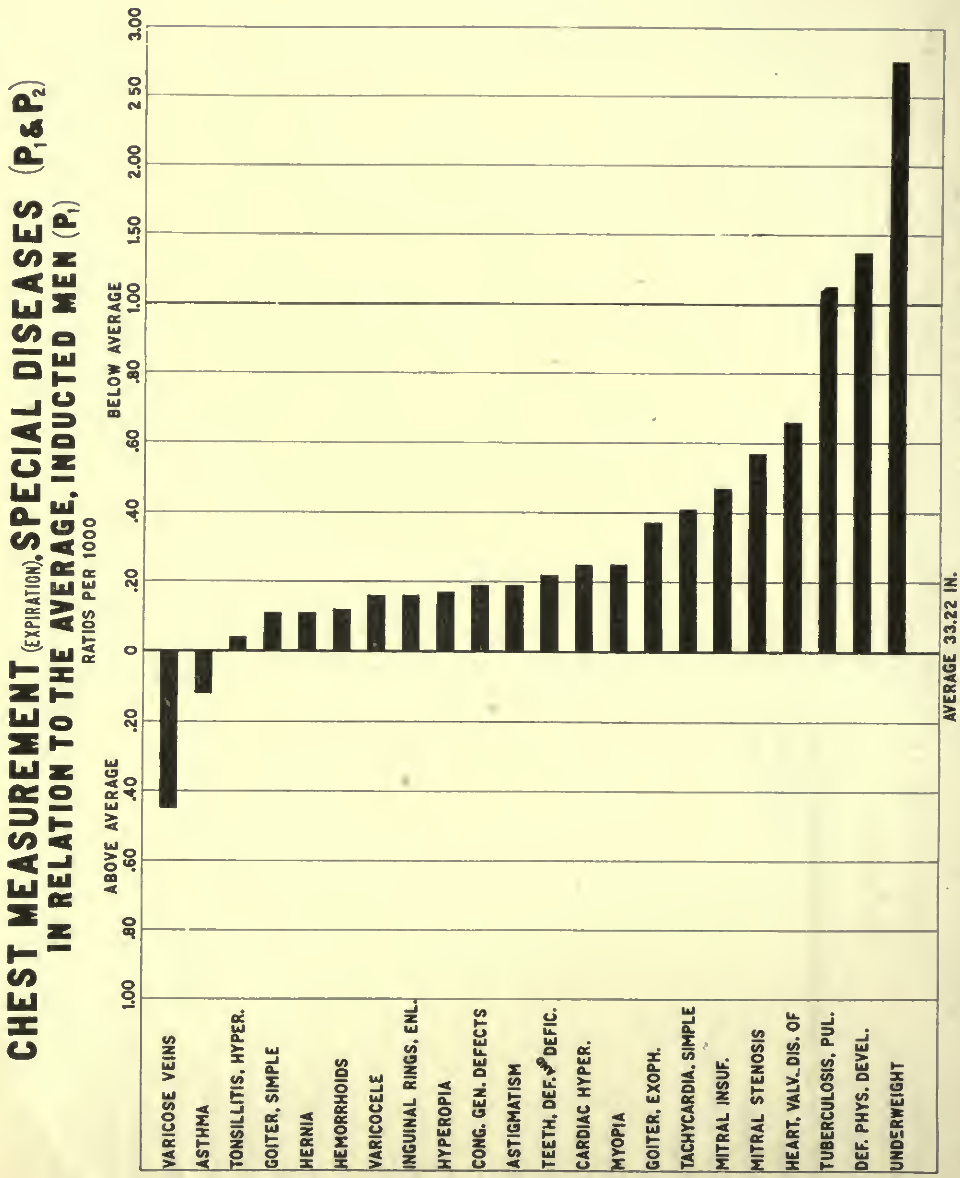
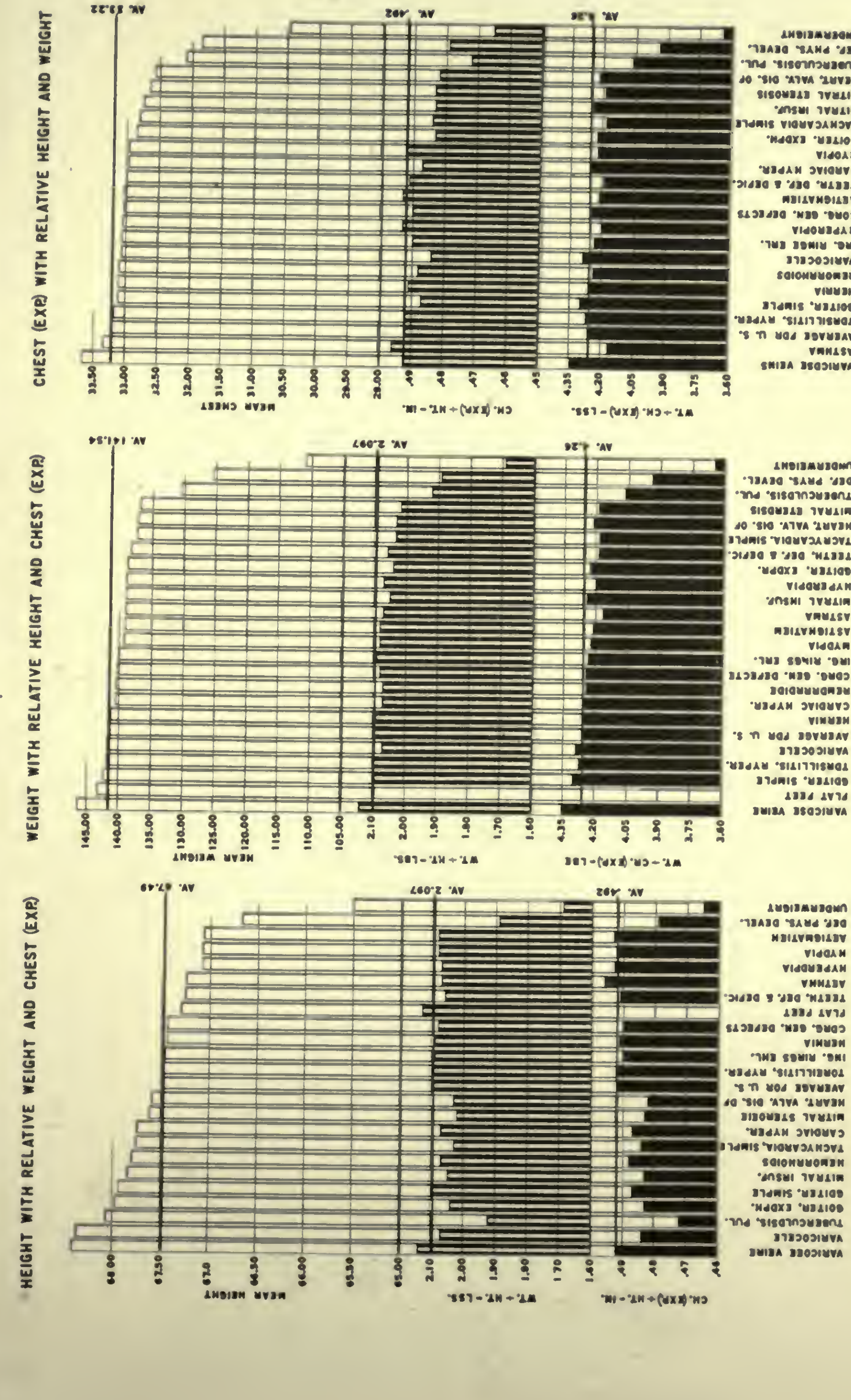

CHEST MEASUREMENT (EXPIRATION), SPECIAL DISEASES (P_1 & P_2)
IN RELATION TO THE AVERAGE, INDUCTED MEN (P_1)
RATIOS PER 1000
ABOVE AVERAGE
BELOW AVERAGE
1.00
.80
.60
.40
.20
0
.20
.40
.60
.80
1.00
1.50
2.00
2.50
3.00
VARICOSE VEINS
ASTHMA
TONSILLITIS, HYPER.
GOITER, SIMPLE
HERNIA
HEMORRHOIDS
VARICOCELE
INGUINAL RINGS, ENL.
HYPEROPIA
CONG. GEN. DEFECTS
ASTIGMATISM
TEETH, DEF. & DEFIC.
CARDIAC HYPER.
MYOPIA
GOITER, EXOPH.
TACHYCARDIA, SIMPLE
MITRAL INSUF.
MITRAL STENOSIS
HEART, VALV. DIS. OF
TUBERCULOSIS, PUL.
DEF. PHYS. DEVEL.
UNDERWEIGHT
AVERAGE 33.22 IN.

PLATE XLI.



TOTAL AND PROPORTIONATE MEASUREMENTS, SPECIAL DISEASES (P_1 & P_2)

PLATE XLII.

TABLE 184.—*Height distribution by special diseases or defects, for first and second million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Disease.	Total.	Height, in inches.																					
		58 and under.	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80 and over.
Tuberculosis, pulmonary	10,701	9	14	35	64	122	240	505	783	1,198	1,444	1,584	1,496	1,242	888	568	283	135	53	23	5	8	1	1
Goiter, simple	7,099	4	10	9	33	70	165	306	529	871	1,059	1,143	1,021	801	515	305	143	61	26	14	7	6	1	......
Exophthalmic goiter	2,620	1	5	6	10	28	71	126	187	304	378	396	382	305	210	105	63	23	9	6	2	2	....	1
Asthma	1,581	2	6	7	15	21	72	112	178	196	242	231	186	138	93	40	27	7	3	4	....	....	1	......
Astigmatism	1,592	2	2	5	14	41	88	129	163	230	220	228	171	131	90	43	21	9	3	1	....	1	....	......
Hyperopia	969	3	3	6	17	21	38	70	100	133	134	150	116	86	48	29	9	5	......	1	....	....	....	......
Myopia	2,420	3	10	11	32	58	108	185	304	299	348	350	235	209	132	86	24	17	1	6	2	....	....	......
Tonsillitis, hypertrophic	52,031	35	82	206	492	999	1,962	3,211	5,004	6,392	7,571	7,655	6,748	4,925	3,250	1,913	942	400	143	57	22	11	10	1
Cardiac hypertrophy	1,343	1	7	2	6	14	42	74	129	164	177	199	167	161	93	60	28	9	6	2	1	1	....	......
Mitral insufficiency	8,860	8	9	30	52	115	276	459	732	1,034	1,244	1,380	1,140	984	620	399	205	101	44	19	4	5	....	......
Mitral stenosis	2,512	4	7	8	16	43	85	140	212	320	367	369	321	262	186	91	53	18	4	1	1	2	2	......
Tachycardia, simple	2,147	2	2	7	16	26	67	109	187	265	292	309	330	243	130	74	54	19	11	3	1	....	....	......
Valvular disease of heart	3,419	3	8	15	21	46	104	189	349	414	517	488	442	351	238	139	57	25	6	4	1	2	....	......
Hemorrhoids	1,824	2	4	5	11	27	56	100	159	201	253	301	237	181	127	78	45	20	9	5	....	1	....	2
Varicose veins	3,423	1	3	6	20	25	51	152	219	329	425	536	475	421	312	233	107	60	30	13	1	3	1	......
Varicocele	5,849	3	22	14	32	57	109	193	369	556	730	935	874	737	540	331	169	102	44	23	2	3	4	......
Defective and deficient teeth	17,983	19	30	73	155	343	786	1,210	1,949	2,416	2,722	2,594	2,159	1,497	985	589	278	101	45	12	9	5	5	1
Hernia	34,324	47	71	120	341	642	1,288	2,249	3,321	4,433	4,871	5,017	4,242	3,249	2,135	1,209	607	283	109	49	17	11	7	6
Inguinal rings, enlarged	43,619	31	75	144	400	749	1,609	2,839	4,085	5,541	6,501	6,618	5,383	4,057	2,753	1,508	778	334	133	48	15	9	6	3
Flat-foot	270,348	135	530	1,026	2,770	5,644	11,124	18,297	27,639	35,843	40,273	39,628	32,135	24,515	15,334	8,591	4,055	1,645	621	290	113	73	63	4
Defective physical development	1,292	2	68	57	37	43	59	69	123	144	126	154	126	106	78	45	25	11	4	5	2	3	4	1
Underweight	12,129	76	165	401	626	956	1,248	1,469	1,594	1,382	1,197	861	659	476	334	293	160	120	63	38	10	....	1	......
Cryptorchidism, hypospadia, anorchism, and monorchism	4,948	14	6	31	51	96	202	287	476	634	695	723	591	482	333	172	81	42	21	6	3	1	1	......
Total	493,033	407	1,139	2,224	5,231	10,186	19,850	32,480	48,791	63,299	71,786	71,849	59,636	45,559	29,424	16,901	8,214	3,547	1,388	630	218	147	107	20

SECTION B: RATIOS PER 1,000.

Disease.	Total.	Height, in inches. 58 and under.	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80 and over.	Total.
Tuberculosis, pulmonary	10,701	0.84	1.31	3.27	5.98	11.40	22.43	47.19	73.17	111.95	134.94	148.02	139.80	116.06	82.98	53.08	26.45	12.62	4.95	2.15	0.47	0.75	0.09	0.09	1,000
Goiter, simple	7.099	.56	1.41	1.27	4.65	9.86	23.24	43.10	74.52	122.69	149.18	161.01	143.82	112.83	72.55	42.96	20.14	8.59	3.66	1.97	.99	.85	.14	....	1,000
Exophthalmic goiter	2,620	.38	1.91	2.29	3.82	10.69	27.10	48.09	71.37	116.03	144.27	151.15	145.80	116.41	80.15	40.08	24.05	8.78	3.44	2.29	.76	.76	....	.38	1,000
Asthma	1,581	1.27	3.80	4.43	9.49	13.28	45.54	70.84	112.59	123.97	153.07	146.11	117.65	87.29	58.82	25.30	17.08	4.43	1.90	2.53	....	....	.63	....	1,000
Astigmatism	1,592	1.26	1.26	3.14	8.79	25.75	55.28	81.03	102.39	144.47	138.19	143.22	107.41	82.29	56.53	27.01	13.19	5.65	1.88	.63	....	.63	....	....	1,000
Hyperopia	969	3.10	3.10	6.19	17.54	21.67	39.22	72.24	103.20	137.25	138.29	154.80	119.71	88.75	49.54	29.93	9.29	5.16	....	1.03	....	....	....	....	1,000
Myopia	2,420	1.24	4.13	4.55	13.22	23.97	44.63	76.45	125.62	123.55	143.80	144.63	97.11	86.36	54.55	35.54	9.92	7.02	.41	2.48	.83	....	....	....	1,000
Tonsillitis, hypertrophic	52,031	.67	1.58	3.96	9.46	19.20	37.71	61.71	96.17	122.85	145.51	147.12	129.69	94.66	62.46	36.77	18.10	7.69	2.75	1.10	.42	.21	.19	.02	1,000
Cardiac hypertrophy	1,343	.74	5.21	1.49	4.47	10.42	31.27	55.10	96.05	122.11	131.79	148.18	124.35	119.88	69.25	44.68	20.85	6.70	4.47	1.49	.74	.74	....	....	1,000
Mitral insufficiency	8,860	.90	1.02	3.39	5.87	12.98	31.15	51.81	82.62	116.70	140.41	155.76	128.67	111.06	69.98	45.03	23.14	11.40	4.97	2.14	.45	.56	....	....	1,000
Mitral stenosis	2,512	1.59	2.79	3.18	6.37	17.12	33.84	55.73	84.39	127.39	146.10	146.89	127.79	104.30	74.04	36.23	21.10	7.17	1.59	.40	.40	.80	.80	....	1,000
Tachycardia, simple	2,147	.93	.93	3.26	7.45	12.11	31.21	50.77	87.10	123.43	136.00	143.92	153.70	113.18	60.55	34.47	25.15	8.85	5.12	1.40	.47	....	....	....	1,000
Valvular disease of heart	3,419	.88	2.34	4.39	6.14	13.45	30.42	55.28	102.08	121.09	151.21	142.73	129.28	102.66	69.61	40.66	16.67	7.31	1.75	1.17	.29	.58	....	....	1,000
Hemorrhoids	1,824	1.10	2.19	2.74	6.03	14.80	30.70	54.82	87.17	110.20	138.71	165.02	129.93	99.23	69.63	42.76	24.67	10.96	4.93	2.74	....	.55	....	1.10	1,000
Varicose veins	3,423	.29	.88	1.75	5.84	7.30	14.90	44.41	63.98	96.11	124.16	156.59	138.77	122.99	91.15	68.07	31.26	17.53	8.76	3.80	.29	.88	.29	....	1,000
Varicocele	5,849	.51	3.76	2.39	5.47	9.75	18.64	33.00	63.09	95.06	124.81	159.86	149.43	126.00	92.32	56.59	28.89	17.44	7.52	3.93	.34	.51	.68	....	1,000
Defective and deficient teeth	17,983	1.06	1.67	4.06	8.62	19.07	43.71	67.29	108.38	134.35	151.37	144.25	120.06	83.25	54.77	32.75	15.46	5.62	2.50	.67	.50	.28	.28	.06	1,000
Hernia	34,324	1.37	2.07	3.50	9.93	18.70	37.52	65.52	96.75	129.15	141.91	146.17	123.59	94.66	62.20	35.22	17.68	8.24	3.18	1.43	.50	.32	.20	.17	1,000
Inguinal rings, enlarged	43,619	.71	1.72	3.30	9.17	17.17	36.89	65.09	93.65	127.03	149.04	151.72	123.41	93.01	63.11	34.57	17.84	7.66	3.05	1.10	.34	.21	.14	.07	1,000
Flat-foot	270,348	.50	1.96	3.80	10.25	20.88	41.15	67.68	102.23	132.58	148.97	146.58	118.87	90.68	56.72	31.78	15.00	6.08	2.30	1.07	.42	.27	.23	.01	1,000
Defective physical development	1,292	1.55	52.63	44.12	28.64	33.28	45.67	53.41	95.20	111.46	97.52	119.20	97.52	82.04	60.37	34.83	19.35	8.51	3.10	3.87	1.55	2.32	3.10	.77	1,000
Underweight	12,129	6.27	13.60	33.06	51.61	78.82	102.89	121.11	131.42	113.94	98.69	70.99	54.33	39.24	27.54	24.16	13.19	9.89	5.19	3.13	.82	....	.08	....	1,000
Cryptorchidism, hypospadia, anorchism, and monorchism	4,948	2.83	1.21	6.27	10.31	19.40	40.82	58.00	96.20	128.13	140.46	146.12	119.44	97.41	67.30	34.76	16.37	8.49	4.24	1.21	.61	.20	.20	....	1,000
Total	493,033	.83	2.31	4.51	10.61	20.66	40.26	65.88	98.96	128.39	145.60	145.73	120.96	92.41	59.68	34.28	16.66	7.19	2.82	1.28	.44	.30	.22	.04	1,000

TABLE 185.—*Weight distribution by special diseases or defects, for first and second million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Disease.	Total.	Weight, in pounds.																						
		89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
Tuberculosis, pulmonary	10,701	3	9	46	167	372	718	1,186	1,462	1,498	1,460	1,142	913	642	435	235	167	133	47	29	13	9	5	8	2
Goiter, simple	7,099	1			12	31	133	271	489	684	771	859	906	801	646	465	348	245	166	103	63	38	37	16	14
Goiter, exophthalmic	2,620			1	11	25	76	171	222	293	342	302	311	250	187	143	102	68	43	31	16	13	5	4	4
Asthma	1,581			2	10	27	50	97	145	171	174	207	175	150	106	69	62	38	40	20	10	11	5	4	8
Astigmatism	1,592				8	14	64	83	134	161	216	213	172	144	113	85	58	40	35	19	8	10	7	3	5
Hyperopia	969				2	7	38	50	77	114	118	120	133	94	71	37	35	28	17	13	4	2	3	3	3
Myopia	2,420			1	14	40	101	143	210	255	316	282	246	194	172	134	97	57	51	30	22	15	13	10	17
Tonsillitis, hypertrophic	52,031	3	1	13	98	401	1,286	2,442	3,862	5,097	6,014	6,354	6,122	5,139	4,343	3,153	2,319	1,730	1,145	810	564	316	262	202	355
Cardiac hypertorphy	1,343				7	12	34	53	101	153	157	182	159	140	95	80	60	42	25	14	10	6	3	2	8
Mitral insufficiency	8,860			8	44	112	273	523	778	923	1,083	1,127	1,008	830	686	484	356	230	152	81	52	36	22	20	32
Mitral stenosis	2,512			2	17	35	74	169	248	304	339	354	271	208	177	103	71	59	37	19	8	9	3	2	3
Tachycardia, simple	2,147				17	43	90	136	213	262	259	262	230	184	151	83	71	40	37	17	16	9	9	8	10
Valvular diseases of heart (others)	3,419		1	3	21	52	151	251	326	396	425	395	380	300	233	160	102	69	58	38	25	8	5	2	18
Hemorrhoids	1,824	2			4	14	46	92	133	202	225	219	219	197	140	108	75	51	38	21	15	5	3	4	11
Varicose veins	3,423	2		2	4	15	45	100	157	270	322	365	425	418	312	242	209	160	115	83	53	42	26	10	46
Varicocele	5,849			1	25	32	147	214	353	580	694	759	701	637	532	403	244	170	139	91	51	31	22	8	15
Defective and deficient teeth	17,983	5	6	19	102	244	646	1,183	1,651	1,951	2,069	2,203	2,012	1,674	1,388	955	641	434	294	172	130	80	48	30	46
Hernia	34,324	2	5	19	135	318	827	1,603	2,479	3,391	3,890	4,337	4,101	3,531	2,780	2,152	1,568	1,122	721	452	328	185	145	88	145
Inguinal rings, enlarged	43,619		1	16	143	394	1,140	2,283	3,483	4,488	5,255	5,563	5,212	4,388	3,477	2,518	1,807	1,222	839	509	360	187	147	93	94
Flat-foot	270,348	3	9	90	769	1,941	5,996	11,428	17,957	24,041	29,361	32,061	31,134	27,651	23,670	17,930	13,708	10,390	6,857	4,756	3,571	1,993	1,486	1,110	2,436
Defective physical development	1,292			30	81	138	169	176	127	103	111	90	77	60	32	24	20	19	12	7	6	1	3	4	2
Underweight	12,129	43	129	705	1,815	3,468	2,774	1,517	651	439	217	156	95	54	24	13	10	13	2	2	1				1
Cryptorchidism, hypospadia, anorchism, and monorchism	4,948	2	2	8	28	51	158	267	414	522	544	558	618	425	381	306	224	133	101	50	56	31	28	14	27
Total	493,033	66	163	966	3,534	7,786	15,036	24,438	35,672	46,298	54,362	58,110	55,620	48,111	40,151	29,882	22,354	16,493	10,971	7,367	5,382	3,037	2,287	1,645	3,302

SECTION B: RATIOS PER 1,000.

Disease.	Total.	Weight, in pounds. 89 and under.	90–94	95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	Total.
Tuberculosis, pulmonary	10,701	0.28	0.84	4.30	15.61	34.76	67.10	110.83	136.62	139.99	136.44	106.72	85.32	59.99	40.65	21.96	15.61	12.43	4.39	2.71	1.21	0.84	0.47	0.75	0.19	1,000
Goiter, simple	7,099	.14			1.69	4.37	18.74	38.17	68.88	96.35	108.61	121.00	127.63	112.83	91.00	65.51	49.02	34.51	23.39	14.51	8.88	5.35	5.21	2.25	1.97	1,000
Exophthalmic goiter	2,620			.38	4.20	9.54	29.01	65.26	84.73	111.83	130.53	115.27	118.70	95.42	71.37	54.58	38.93	25.95	16.41	11.83	6.11	4.96	1.91	1.53	1.53	1,000
Asthma	1,581			1.27	6.33	17.08	31.63	61.35	91.71	108.16	110.06	130.93	110.69	94.88	67.05	43.64	39.22	24.04	25.30	12.65	6.33	6.96	3.16	2.53	5.06	1,000
Astigmatism	1,592				5.03	8.79	40.20	52.14	84.17	101.13	135.68	133.79	108.04	90.45	70.98	53.39	36.43	25.13	21.98	11.93	5.03	6.28	4.40	1.88	3.14	1,000
Hyperopia	969				2.06	7.22	39.22	51.60	79.46	117.65	121.77	123.84	137.25	97.01	73.27	38.18	36.12	28.89	17.54	13.42	4.13	2.06	3.10	3.10	3.10	1,000
Myopia	2,420			.41	5.79	16.53	41.74	59.09	86.77	105.37	130.58	116.53	101.65	80.16	71.07	55.37	40.08	23.55	21.07	12.40	9.09	6.20	5.37	4.13	7.02	1,000
Tonsillitis, hypertrophic	52,031	.06	.02	.25	1.88	7.71	24.72	46.93	74.23	97.96	115.58	122.12	117.66	98.77	83.47	60.60	44.57	33.25	22.01	15.57	10.84	6.07	5.04	3.88	6.82	1,000
Cardiac hypertrophy	1,343				5.21	8.93	25.32	39.46	75.20	113.92	116.90	135.52	118.39	104.24	70.73	59.57	44.68	31.27	18.61	10.42	7.45	4.47	2.23	1.49	5.96	1,000
Mitral insufficiency	8,860			.90	4.97	12.64	30.81	59.03	87.81	104.18	122.23	127.20	113.77	93.68	77.43	54.63	40.18	25.96	17.16	9.14	5.87	4.06	2.48	2.26	3.61	1,000
Mitral stenosis	2,512			.80	6.77	13.93	29.46	67.28	98.73	121.02	134.95	140.92	107.88	82.80	70.46	41.00	28.26	23.49	14.73	7.56	3.18	3.58	1.19	.80	1.19	1,000
Tachycardia, simple	2,147				7.92	20.03	41.92	63.34	99.21	122.03	120.63	122.03	107.13	85.70	70.33	38.66	33.07	18.63	17.23	7.92	7.45	4.19	4.19	3.73	4.66	1,000
Valvular diseases of heart	3,419		.29	.88	6.14	15.21	44.17	73.41	95.35	115.82	124.31	115.53	111.14	87.74	68.15	46.80	29.83	20.18	16.96	11.11	7.31	2.34	1.46	.58	5.26	1,000
Hemorrhoids	1,824	1.10			2.19	7.68	25.22	50.44	72.92	110.75	123.35	120.06	120.06	108.00	76.75	59.21	41.12	27.96	20.83	11.51	8.22	2.74	1.64	2.19	6.03	1,000
Varicose veins	3,423	.58		.58	1.17	4.38	13.15	29.21	45.87	78.88	94.07	106.63	124.16	122.11	91.14	70.70	61.06	46.74	33.60	24.25	15.48	12.27	7.60	2.92	13.44	1,000
Varicocele	5,849			.17	4.27	5.47	25.13	36.59	60.35	99.16	118.65	129.76	119.85	108.91	90.96	68.90	41.71	29.06	23.76	15.56	8.72	5.30	3.76	1.37	2.56	1,000
Defective and deficient teeth	17,983	.28	.33	1.06	5.67	13.57	35.92	65.79	91.81	108.49	115.05	122.50	111.88	93.09	77.19	53.11	35.64	24.13	16.35	9.56	7.23	4.45	2.67	1.67	2.56	1,000
Hernia	34,324	.06	.15	.55	3.93	9.26	24.09	46.70	72.23	98.80	113.33	126.36	119.48	102.87	80.99	62.70	45.68	32.69	21.01	13.17	9.56	5.39	4.22	2.56	4.22	1,000
Inguinal rings, enlarged	43,619		.02	.37	3.28	9.03	26.14	52.34	79.85	102.89	120.47	127.54	119.49	100.60	79.71	57.73	41.43	28.02	19.23	11.67	8.25	4.29	3.37	2.13	2.16	1,000
Flat-foot	270,348	.01	.03	.33	2.84	7.18	22.18	42.27	66.42	88.93	108.61	118.59	115.16	102.28	87.56	66.32	50.71	38.44	25.36	17.59	13.21	7.37	5.50	4.11	9.01	1,000
Defective physical development	1,292			23.22	62.69	106.81	130.80	136.22	98.30	79.71	85.91	69.65	59.60	46.44	24.77	18.57	15.48	14.71	9.29	5.42	4.64	.77	2.32	3.10	1.55	1,000
Underweight	12,129	3.55	10.64	58.12	149.64	285.93	228.71	125.07	53.67	36.19	17.89	12.86	7.83	4.45	1.98	1.07	.82	1.07	.16	.16	.08				.08	1,000
Cryptorchidism, hypospadia, anorchism, and monorchism	4,948	.40	.40	1.62	5.66	10.31	31.93	53.96	83.66	105.50	109.94	112.77	124.90	85.89	77.00	61.84	45.27	26.88	20.41	10.10	11.32	6.26	5.66	2.83	5.46	1,000
Total	493,033	.13	.33	1.96	7.16	15.79	30.50	49.56	72.35	93.89	110.26	117.86	112.81	97.58	81.44	60.61	45.34	33.45	22.25	14.94	10.92	6.16	4.64	3.34	6.70	1,000

TABLE 186.—*Chest circumference (expiration) distribution by special diseases or defects, for first and second million draft recruits.*

SECTION A: ABSOLUTE NUMBERS.

Disease.	Total.	Chest, in inches.														
		28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.
Tuberculosis, pulmonary	10, 649	126	628	1, 388	2, 026	2, 293	1, 918	1, 233	617	290	89	22	14	2	1	......	2
Goiter, simple	7, 085	26	109	438	881	1, 333	1, 454	1, 255	808	444	202	87	38	7	1	2	......
Exophthalmic goiter	2, 622	6	69	209	380	540	503	392	287	138	57	23	11	3	3	......	1
Asthma	1, 579	6	27	74	175	313	298	254	213	110	52	27	18	6	3	1	2
Astigmatism	1, 587	......	28	105	224	329	319	251	154	96	41	17	13	8	1	1	......
Hyperopia	968	......	20	68	123	182	205	157	113	63	18	10	6	1	......	......	2
Myopia	2, 417	17	55	192	356	436	464	357	262	145	68	32	24	6	2	1	......
Tonsillitis, hypertrophic	51, 985	131	1, 057	3, 168	6, 384	9, 616	10, 435	8, 769	5, 887	3, 389	1, 629	781	554	84	43	21	37
Cardiac hypertrophy	1, 339	7	32	91	181	248	276	232	138	80	34	6	8	3	......	2	1
Mitral insufficiency	8, 830	57	310	733	1, 271	1, 801	1, 713	1, 336	823	459	199	83	33	5	2	1	4
Mitral stenosis	2, 507	14	95	186	399	528	493	390	224	120	34	20	4	......	......	......	......
Tachycardia, simple	2, 143	......	79	168	330	411	447	311	209	104	37	24	9	6	3	4	1
Valvular disease of heart	3, 406	36	118	331	558	687	668	477	286	142	63	20	14	3	1	1	1
Hemorrhoids	1, 819	6	32	95	209	374	372	333	228	98	48	14	7	1	......	......	2
Varicose veins	3, 426	13	33	138	339	491	690	616	460	323	160	93	53	8	6	......	3
Varicocele	5, 836	12	132	368	757	1, 075	1, 204	1, 011	646	367	156	64	38	3	2	1	......
Defective and deficient teeth	17, 932	106	389	1, 224	2, 343	3, 510	3, 567	2, 952	1, 982	1, 044	483	188	91	28	13	9	3
Hernia	34, 220	110	659	2, 052	4, 385	6, 444	6, 940	5, 776	3, 888	2, 198	1, 034	407	235	53	25	5	9
Inguinal rings, enlarged	43, 625	114	810	2, 747	5, 566	8, 457	9, 027	7, 346	4, 913	2, 681	1, 195	472	244	32	14	3	4
Defective physical development	1, 284	30	126	217	251	239	166	106	69	33	21	13	11	2			
Underweight	12, 132	946	2, 279	3, 516	2, 837	1, 559	596	236	99	15	7	5	37	......	......	......	......
Cryptorchidism, anorchism, monorchism, and hypospadia	4, 943	19	122	328	679	980	926	832	493	287	130	69	56	9	3	4	6
Total	222, 334	1, 782	7, 209	17, 836	30, 654	41, 846	42, 681	34, 622	22, 799	12, 626	5, 757	2, 477	1, 518	270	123	56	78

SECTION B: RATIOS PER 1,000.

Disease.	Total.	Chest, in inches. 28 and under.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43 and over.	Total.
Tuberculosis, pulmonary	10,649	11.83	58.97	130.34	190.25	215.33	180.11	115.79	57.94	27.23	8.36	2.07	1.31	0.19	0.09	......	0.19	1,000
Goiter, simple	7,085	3.67	15.38	61.82	124.35	188.14	205.22	177.13	114.04	62.67	28.51	12.28	5.36	.99	.14	0.28	......	1,000
Exophthalmic goiter	2,622	2.29	26.32	79.71	144.93	205.95	191.84	149.50	109.46	52.63	21.74	8.77	4.20	1.14	1.14	......	.38	1,000
Asthma	1,579	3.80	17.10	46.87	110.83	198.23	188.73	160.86	134.90	69.66	32.93	17.10	11.40	3.80	1.90	.63	1.27	1,000
Astigmatism	1,587	......	17.64	66.16	141.15	207.31	201.01	158.16	97.04	60.49	25.83	10.71	8.19	5.04	.63	.63	......	1,000
Hyperopia	968	......	20.66	70.25	127.07	188.02	211.78	162.19	116.74	65.08	18.60	10.33	6.20	1.03	......	......	2.07	1,000
Myopia	2,417	7.03	22.76	79.44	147.29	180.39	191.97	147.70	108.40	59.99	28.13	13.24	9.93	2.48	.83	.41	......	1,000
Tonsillitis, hypertrophic	51,985	2.52	20.33	60.94	122.80	184.98	200.73	168.68	113.24	65.19	31.34	15.02	10.66	1.62	.83	.40	.71	1,000
Cardiac hypertrophy	1,339	5.23	23.90	67.96	135.18	185.21	206.12	173.26	103.06	59.75	25.39	4.48	5.97	2.24	......	1.49	.75	1,000
Mitral insufficiency	8,830	6.46	35.11	83.01	143.94	203.96	194.00	151.30	93.20	51.98	22.54	9.40	3.74	.57	.23	.11	.45	1,000
Mitral stenosis	2,507	5.58	37.89	74.19	159.15	210.61	196.65	155.56	89.35	47.87	13.56	7.98	1.60	......	......	......	......	1,000
Tachycardia, simple	2,143	......	36.86	78.39	153.99	191.79	208.59	145.12	97.53	48.53	17.27	11.20	4.20	2.80	1.40	1.87	......	1,000
Valvular disease of heart	3,406	10.57	34.64	97.18	163.83	201.70	196.12	140.05	83.97	41.69	18.50	5.87	4.11	.88	.29	.29	.29	1,000
Hemorrhoids	1,819	3.30	17.59	52.23	114.90	205.61	204.51	183.07	125.34	53.88	26.39	7.70	3.85	.55	......	......	1.10	1,000
Varicose veins	3,426	3.79	9.63	40.28	98.95	143.32	201.40	179.80	134.27	94.28	46.70	27.15	15.47	2.35	1.75	......	.88	1,000
Varicocele	5,836	2.06	22.62	63.06	129.71	184.20	206.31	173.24	110.69	62.89	26.73	10.97	6.51	.51	.34	.17	......	1,000
Defective and deficient teeth	17,932	5.91	21.69	68.26	130.66	195.74	198.92	164.62	110.53	58.22	26.94	10.48	5.07	1.56	.72	.50	.17	1,000
Hernia	34,220	3.21	19.26	59.96	128.14	188.31	202.81	168.79	113.62	64.23	30.22	11.89	6.87	1.55	.73	.15	.26	1,000
Inguinal rings, enlarged	43,625	2.61	18.57	62.97	127.59	193.86	206.92	168.39	112.62	61.46	27.39	10.82	5.59	.73	.32	.07	.09	1,000
Defective physical development	1,284	23.36	98.13	169.00	195.48	186.14	129.28	82.55	53.74	25.70	16.36	10.12	8.57	1.56	......	......	......	1,000
Underweight	12,132	77.98	187.85	289.81	233.84	128.50	49.13	19.45	8.16	1.24	.58	.41	3.05	......	......	......	......	1,000
Cryptorchidism, anorchism, monorchism, and hypospadia	4,943	3.84	24.68	66.36	137.37	198.26	187.34	168.32	99.74	58.06	26.30	13.96	11.33	1.82	.61	.81	1.21	1,000
Total	222,334	8.01	32.42	80.22	137.87	188.21	191.97	155.72	102.54	56.79	25.89	11.14	6.83	1.21	.55	.25	.35	1,000

TABLE 187.—*Summary of means, standard deviations, and probable errors, coefficients of variability and probable errors, of recruits found with specified diseases and defects; also correlations between pairs of dimensions for first and second million recruits. (From Tables 139–183.)*

[Height and chest in inches and weight in pounds.]

Disease.	Number measured.	First or second million.	Dimension.	Mean.	Standard deviation.	Probable error of standard deviation.	Coefficient of variation.	Probable error of coefficient of variation.	Correlation.	Probable error of correlation.
Pulmonary tuberculosis	10,701	First and second.	Height....	68.07	2.736	±0.013	0.04019	0.00019	0.4754	±0.0050
			Weight....	130.44	14.740	± .068	.11300	.00053		
	4,653	First......	Height....	68.01	2.702	± .019	.03973	.00020	.4554	± .0078
			Weight....	131.77	14.950	± .106	.11346	.00079		
	6,048	Second....	Height....	68.12	2.762	± .017	.04054	.00024	.5533	± .0060
			Weight....	129.42	14.358	± .090	.11094	.00067		
	10,649	First and second.	Height....	68.07	2.731	± .013	.04012	.00019	.2412	± .0062
			Chest.....	32.09	1.848	± .009	.05758	.00029		
	4,627	First......	Height....	68.02	2.693	± .019	.03959	.00021	.2391	± .0093
			Chest.....	32.33	1.875	± .013	.05799	.00035		
	6,022	Second....	Height....	68.12	2.759	± .017	.04050	.00024	.2499	± .0081
			Chest.....	31.90	1.805	± .011	.05658	.00030		
Simple goiter	7,099	First and second.	Height....	67.94	2.578	± .015	.03794	.00020	.5160	± .0059
			Weight....	142.36	16.498	± .093	.11588	.00094		
	1,813	First......	Height....	67.94	2.544	± .028	.03744	.00049	.4861	± .0121
			Weight....	142.39	16.287	± .182	.11789	.00151		
	5,286	Second....	Height....	67.95	2.590	± .017	.03812	.00020	.5260	± .0067
			Weight....	142.35	16.573	± .109	.11642	.00108		
	7,085	First and second.	Height....	67.94	2.579	± .015	.03796	.00020	.2616	± .0075
			Chest.....	33.11	1.950	± .011	.05889	.00032		
	1,809	First......	Height....	67.94	2.544	± .029	.03744	.00033	.2182	± .0151
			Chest.....	33.04	1.938	± .022	.05866	.00056		
	5,276	Second....	Height....	67.94	2.590	± .017	.03812	.00020	.2760	± .0086
			Chest.....	33.13	1.953	± .013	.05895	.00040		
Exophthalmic goiter	2,620	First and second.	Height....	67.97	2.647	± .025	.03894	.00028	.4765	± .0102
			Weight....	138.82	16.425	± .153	.11832	.00112		
	439	First......	Height....	67.94	2.535	± .058	.03731	.00093	.4876	± .0245
			Weight....	138.39	16.420	± .160	.11580	.00270		
	2,181	Second....	Height....	67.97	2.669	± .027	.03927	.00032	.4756	± .0012
			Weight....	138.39	16.410	± .0335	.11867	.00142		
	2,622	First and second.	Height....	67.97	2.649	± .025	.03897	.00037	.2440	± .0124
			Chest.....	32.85	1.976	± .018	.06015	.00056		
	439	First......	Height....	67.94	2.535	± .058	.03731	.00093	.2489	± .0302
			Chest.....	33.01	1.914	± .044	.05798	.00117		
	2,183	Second....	Height....	67.97	2.672	± .027	.03931	.00039	.2454	± .0136
			Chest.....	32.82	1.987	± .020	.06054	.00061		
Myopia	2,420	First and second.	Height....	67.08	2.787	± .027	.04155	.00039	.4912	± .0104
			Weight....	139.23	18.452	± .179	.13253	.00126		
	778	First......	Height....	67.23	2.827	± .048	.04205	.00069	.5121	± .0178
			Weight....	140.23	18.069	± .309	.12885	.00215		
	1,642	Second....	Height....	67.01	2.765	± .033	.04126	.00047	.4806	± .0128
			Weight....	138.75	18.611	± .219	.13413	.00152		
	2,417	First and second.	Height....	67.08	2.781	± .027	.04146	.00039	.2095	± .0131
			Chest.....	32.97	2.119	± .021	.06427	.00058		
	776	First......	Height....	67.23	2.831	± .049	.04211	.00069	.2177	± .0231
			Chest.....	33.13	2.116	± .036	.06387	.00103		
	1,641	Second....	Height....	67.01	2.760	± .033	.04119	.00047	.2028	± .0160
			Chest.....	32.89	2.117	± .025	.06437	.00070		
Hyperopia	969	First and second.	Height....	67.08	2.719	± .042	.04053	.00061	.4511	± .0173
			Weight....	138.96	16.289	± .250	.11722	.00187		
	188	First......	Height....	67.28	2.650	± .092	.03939	.00145	.4145	± .0407
			Weight....	139.13	17.228	± .600	.12383	.00436		
	781	Second....	Height....	67.03	2.733	± .047	.04077	.00069	.4596	± .0190
			Weight....	138.98	16.095	± .275	.11581	.00196		
	968	First and second,	Height....	67.08	2.726	± .042	.04064	.00061	.2393	± .0204
			Chest.....	33.05	1.977	± .030	.05982	.00092		
	188	First......	Height....	67.28	2.650	± .092	.03939	.00145	.2640	± .0451
			Chest.....	33.26	2.026	± .071	.06091	.00218		
	780	Second....	Height....	67.03	2.742	± .047	.04091	.00069	.2317	± .0229
			Chest.....	33.00	1.962	± .034	.05945	.00104		
Astigmatism	1,592	First and second.	Height....	67.07	2.711	± .032	.04042	.00047	.4573	±.0134
			Weight....	139.16	17.000	± .203	.12216	.00143		
	517	First......	Height....	66.95	2.767	± .058	.04133	.00085	.5452	± .0208
			Weight....	138.59	17.245	± .362	.12443	.00265		
	1,075	Second....	Height....	67.13	2.682	± .039	.03995	.00060	.4121	± .0171
			Weight....	139.43	16.868	± .246	.12098	.00181		
	1,587	First and second.	Height....	67.07	2.712	± .033	.04044	.00041	.1928	± .0163
			Chest.....	33.03	2.014	± .024	.06097	.00074		
	517	First......	Height....	66.95	2.767	± .058	.04133	.00085	.2515	± .0278
			Chest.....	33.06	2.019	± .042	.06107	.00127		
	1,070	Second....	Height....	67.13	2.684	± .039	.03999	.00060	.1641	± .0201
			Chest.....	33.01	2.011	± .029	.06092	.00087		

TABLE 187.—*Summary of means, standard deviations, and probable errors, coefficients of variability and probable errors, of recruits found with specified diseases and defects; also correlations between pairs of dimensions for first and second million recruits. (From Tables 139–183.)*—Continued.

[Height and chest in inches and weight in pounds.]

Disease.	Number measured.	First or second million.	Dimension.	Mean.	Standard deviation.	Probable error of standard deviation.	Coefficient of variation.	Probable error of coefficient of variation.	Correlation.	Probable error of correlation.
Hypertrophic tonsils	52,031	First and second.	Height....	67.48	2.727	± .006	.04041	.00008	.4762	± .0026
			Weight....	141.79	17.803	± .037	.12556	.00025		
	23,732	First......	Height....	67.47	2.708	± .008	.04014	.00013	.4838	± .0034
			Weight....	142.19	17.775	± .055	.12501	.00042		
	28,299	Second....	Height....	67.48	2.743	± .008	.04065	.00011	.5001	± .0030
			Weight....	141.46	17.842	± .050	.12613	.00034		
	51,985	First and second.	Height....	67.48	2.730	± .006	.04068	.00008	.2085	± .0028
			Chest.....	33.18	2.071	± .004	.06242	.00012		
	23,712	First......	Height....	67.47	2.703	± .008	.04006	.00012	.2284	± .0042
			Chest.....	33.29	2.031	± .006	.06101	.00018		
	28,273	Second....	Height....	67.48	2.743	± .008	.04065	.00011	.1929	± .0039
			Chest.....	33.08	2.098	± .006	.06342	.00016		
Tachycardia........	2,147	First and second.	Height....	67.76	2.675	± .028	.03948	.00042	.3757	± .0125
			Weight....	137.37	17.571	± .181	.12791	.00138		
	447	First......	Height....	67.73	2.706	± .061	.03995	.00089	.4546	± .0253
			Weight....	137.06	17.360	± .392	.12666	.00280		
	1,700	Second....	Height....	67.76	2.663	± .031	.03930	.00046	.3523	± .0143
			Weight....	137.45	17.634	± .204	.12829	.00148		
	2,143	First and second.	Height....	67.76	2.676	± .028	.03949	.00040	.1769	± .0141
			Chest.....	32.81	2.042	± .021	.06224	.00061		
	447	First......	Height....	67.73	2.720	± .061	.04016	.00089	.2597	± .0298
			Chest......	32.79	2.029	± .046	.06188	.00134		
	1,696	Second....	Height....	67.76	2.664	± .031	.03932	.00046	.1548	± .0160
			Chest.....	32.81	2.045	± .024	.06233	.00069		
Cardiac hypertrophy	1,343	First and second.	Height....	67.75	2.725	± .036	.04022	.00052	.4252	± .0151
			Weight....	140.49	16.845	± .219	.11976	.00155		
	503	First......	Height....	67.68	2.862	± .061	.04229	.00085	.4576	± .0238
			Weight....	139.23	16.746	± .356	.12028	.00255		
	840	Second....	Height....	67.79	2.639	± .043	.03893	.00066	.4044	± .0195
			Weight....	141.24	16.859	± .055	.11936	.00197		
	1,339	First and second.	Height....	67.75	2.724	± .036	.04021	.00052	.1948	± .0177
			Chest.....	32.97	2.003	± .026	.06075	.00079		
	500	First......	Height....	67.67	2.867	± .061	.04237	.00085	.2633	± .0281
			Chest.....	32.88	2.023	± .043	.06153	.00127		
	839	Second....	Height....	67.79	2.633	± .043	.03884	.00066	.1487	± .0228
			Chest.....	33.03	1.989	± .033	.06022	.00093		
Mitral insufficiency.	8,860	First and second.	Height....	67.84	2.732	± .014	.04027	.00022	.4949	± .0054
			Weight...	138.99	16.791	± .085	.12081	.00061		
	4,257	First......	Height....	67.86	2.728	± .020	.04020	.00029	.4860	± .0079
			Weight...	139.11	16.622	± .122	.11949	.00087		
	4,603	Second....	Height....	67.82	2.735	± .019	.04033	.00028	.5029	± .0074
			Weight....	138.87	16.944	± .119	.12201	.00085		
	8,830	First and second.	Height....	67.84	2.730	± .014	.04024	.00022	.2338	± .0068
			Chest.....	32.75	2.000	± .010	.06107	.00032		
	4,240	First......	Height....	67.86	2.728	± .020	.04020	.00029	.1972	± .0100
			Chest.....	32.86	1.943	± .014	.05913	.00043		
	4,590	Second....	Height....	67.82	2.732	± .019	.04028	.00028	.2886	± .0091
			Chest.....	32.65	2.050	± .014	.06279	.00033		
Mitral stenosis......	2,512	First and second.	Height....	67.63	2.724	± .026	.04028	.00038	.4951	± .0102
			Weight...	136.85	15.637	± .149	.11426	.00109		
	1,521	First......	Height....	67.71	2.716	± .033	.04011	.00049	.4831	± .0133
			Weight....	137.46	15.240	± .187	.11087	.00135		
	991	Second....	Height....	67.50	2.731	± .041	.04046	.00060	.5105	± .0158
			Weight...	135.93	16.160	± .245	.11888	.00181		
	2,507	First and second.	Height....	67.62	2.723	± .026	.04027	.00038	.2326	± .0127
			Chest.....	32.65	1.886	± .018	.05776	.00047		
	1,516	First......	Height....	67.71	2.715	± .033	.04010	.00049	.2109	± .0166
			Chest.....	32.77	1.835	± .023	.05600	.00061		
	991	Second....	Height....	67.50	2.731	± .041	.04046	.00060	.2589	± .0200
			Chest.....	32.47	1.948	± .030	.05999	.00094		
Valvular disease of heart (unclassified).	3,419	First and second.	Height....	67.60	2.669	± .022	.03948	.00024	.4546	± .0092
			Weight...	137.24	17.348	± .142	.12641	.00100		
	909	First......	Height....	67.53	2.669	± .042	.03952	.00063	.5023	± .0167
			Weight...	138.49	16.491	± .261	.11908	.00190		
	2,510	Second....	Height....	67.63	2.669	± .025	.03946	.00038	.4459	± .0108
			Weight...	136.78	17.398	± .166	.12720	.00119		
	3,406	First and second.	Height....	67.60	2.671	± .022	.03951	.00031	.2020	± .0111
			Chest.....	32.56	1.979	± .016	.06078	.00046		
	906	First......	Height....	67.53	2.665	± .042	.03946	.00063	.2445	± .0211
			Chest.....	32.77	1.884	± .030	.05749	.00090		
	2,500	Second....	Height....	67.63	2.672	± .026	.03951	.00038	.1896	± .0130
			Chest.....	32.49	2.007	± .019	.06177	.00047		

TABLE 187.—*Summary of means, standard deviations, and probable errors, coefficients of variabitliy and probable errors, of recruits found with specified diseases and defects; also correlations between pairs of dimensions for first and second million recruits. (From Tables 139–183)*—Continued.

[Height and chest in inches and weight in pounds.]

Disease.	Number measured.	First or second million.	Dimension.	Mean.	Standard deviation.	Probable error of standard deviation.	Coefficient of variation.	Probable error of coefficient of variation.	Correlation.	Probable error of correlation.
Varicose veins	3,423	First and second.	Height	68.43	2.742	± .022	.04007	.00033	.4696	± .0090
			Weight	146.44	18.528	± .151	.12652	.00131		
	1,409	First	Height	68.34	2.696	± .034	.03945	.00497	.4833	± .0138
			Weight	146.43	18.389	± .234	.12558	.00159		
	2,014	Second	Height	68.49	2.772	± .030	.04047	.00042	.4608	± .0118
			Weight	146.45	18.625	± .198	.12718	.00135		
	3,426	First and second.	Height	68.43	2.745	± .022	.04011	.00033	.2073	± .0110
			Chest	33.67	2.138	± .017	.06350	.00046		
	1,412	First	Height	68.35	2.703	± .034	.03955	.00051	.2066	± .0172
			Chest	33.70	2.137	± .027	.06341	.00076		
	2,014	Second	Height	68.49	2.772	± .029	.04047	.00042	.2082	± .0144
			Chest	33.64	2.138	± .023	.06356	.00064		
Varicocele	5,849	First and second.	Height	68.37	2.753	±.017	.04027	.00025	.4939	±.0067
			Weight	141.75	16.474	±.103	.11622	.00073		
	3,453	First	Height	68.32	2.779	±.023	.04068	.00033	.4995	±.0086
			Weight	141.88	16.676	±.136	.11754	.00094		
	2,396	Second	Height	68.44	2.715	±.026	.03967	.00038	.4854	±.0105
			Weight	141.55	16.178	±.158	.11429	.00111		
	5,836	First and second.	Height	68.38	2.738	±.017	.04004	.00025	.2237	±.0084
			Chest	33.06	1.965	±.012	.05944	.00399		
	3,441	First	Height	68.33	2.754	±.022	.04030	.00033	.2575	±.0107
			Chest	33.24	1.951	±.016	.05869	.00041		
	2,395	Second	Height	68.44	2.712	±.026	.03963	.00038	.1836	±.0133
			Chest	32.79	1.954	±.019	.05959	.00058		
Hemorrhoids	1,824	First and second.	Height	67.80	2.782	±.031	.04103	.00045	.5219	±.0115
			Weight	140.39	16.757	±.187	.11936	.00134		
	1,027	First	Height	67.82	2.681	±.040	.03953	.00060	.5115	±.0155
			Weight	141.44	16.784	±.250	.11867	.00177		
	797	Second	Height	67.77	2.906	±.049	.04288	.00067	.5285	±.0172
			Weight	139.06	16.747	±.283	.12043	.00202		
	1,819	First and second.	Height	67.80	2.783	±.031	.04105	.00045	.2202	±.0150
			Chest	33.10	1.884	±.021	.05869	.00067		
	1,024	First	Height	67.82	2.680	±.040	.03952	.00060	.2230	±.0200
			Chest	33.22	1.869	±.028	.05626	.00075		
	795	Second	Height	67.77	2.910	±.049	.04294	.00067	.2169	±.0228
			Chest	32.94	1.892	±.032	.05744	.00084		
Asthma	1,581	First and second.	Height	67.24	2.710	±.033	.04030	.00047	.4069	±.0142
			Weight	139.01	17.945	±.215	.12902	.00155		
	614	First	Height	67.22	2.770	±.053	.04121	.00077	.3833	±.0232
			Weight	139.38	17.280	±.333	.12398	.00260		
	967	Second	Height	67.26	2.670	±.041	.03970	.00061	.4226	±.0178
			Weight	138.78	18.351	±.282	.13223	.00217		
	1,579	First and second.	Height	67.25	2.710	±.033	.04030	.00047	.1477	±.0166
			Chest	33.34	2.120	±.025	.06359	.00071		
	612	First	Height	67.23	2.771	±.053	.04122	.00077	.1274	±.0268
			Chest	33.57	2.114	±.041	.06297	.00116		
	967	Second	Height	67.26	2.670	±.041	.03970	.00061	.1628	±.0211
			Chest	33.19	2.112	±.032	.06363	.00092		
Dental caries, defective and deficient teeth.	17,983	First and second.	Height	67.26	2.689	±.010	.03998	.00010	.5067	±.0037
			Weight	138.32	16.889	±.060	.12210	.00043		
	5,166	First	Height	67.26	2.676	±.018	.03979	.00027	.5107	±.0069
			Weight	139.18	16.839	±.112	.12099	.00081		
	12,817	Second	Height	67.26	2.694	±.011	.04005	.00016	.5054	±.0044
			Weight	137.97	16.900	±.071	.12249	.00051		
	17,932	First and second.	Height	67.26	2.686	±.010	.03993	.00014	.2551	±.0047
			Chest	33.00	2.004	±.007	.06073	.00021		
	5,150	First	Height	67.26	2.674	±.018	.03976	.00027	.2713	±.0087
			Chest	33.25	1.943	±.013	.05844	.00059		
	12,782	Second	Height	67.26	2.690	±.011	.03999	.00013	.2495	±.0056
			Chest	32.89	2.018	±.009	.06136	.00026		
Hernia	34,324	First and second.	Height	67.44	2.762	±.007	.04095	.00010	.5188	±.0034
			Weight	141.23	17.167	±.044	.12155	.00030		
	13,870	First	Height	67.40	2.743	±.011	.04070	.00016	.5285	±.0054
			Weight	141.69	17.221	±.070	.12154	.00048		
	20,454	Second	Height	67.47	2.774	±.009	.04111	.00013	.5130	±.0047
			Weight	140.91	17.122	±.011	.12151	.00040		
	34,220	First and second.	Height	67.44	2.760	±.007	.04093	.00010	.2420	±.0027
			Chest	33.11	2.002	±.005	.06047	.00015		
	13,822	First	Height	67.40	2.741	±.011	.04067	.00016	.2515	±.0041
			Chest	33.23	1.991	±.008	.05992	.00020		
	20,398	Second	Height	67.47	2.772	±.010	.04108	.00042	.2372	±.0035
			Chest	33.04	2.005	±.007	.06068	.00064		

TABLE 187.—*Summary of means, standard deviations, and probable errors, coefficients of variability and probable errors, of recruits found with specified diseases and defects; also correlations between pairs of dimensions for first and second million recruits. (From Tables 139–183)*—Continued.

[Height and chest in inches and weight in pounds.]

Disease.	Number measured.	First or second million.	Dimension.	Mean.	Standard deviation.	Probable error of standard deviation.	Coefficient of variation.	Probable error of coefficient of variation.	Correlation.	Probable error of correlation.
Enlarged inguinal rings.	43,619	First and second.	Height....	67.46	2.702	± .006	.04005	.00009	.5115	± .0024
			Weight....	140.08	16.543	± .038	.11810	.00028		
	20,142	First......	Height....	67.54	2.695	± .009	.03990	.00010	.5174	± .0035
			Weight....	140.17	16.637	± .056	.11869	.00040		
	23,477	Second....	Height....	67.40	2.706	± .008	.04015	.00013	.5077	± .0033
			Weight....	140.00	16.462	± .051	.11759	.00038		
	43,625	First and second.	Height....	67.47	2.706	± .006	.04025	.00009	.2310	± .0031
			Chest.....	33.06	1.945	± .004	.05883	.00017		
	20,161	First......	Height....	67.55	2.701	± .009	.03999	.00013	.2410	± .0045
			Chest.....	33.03	1.916	± .006	.05801	.00019		
	23,461	Second....	Height....	67.40	2.708	± .008	.04018	.00013	.2237	± .0042
			Chest.....	33.09	1.969	± .006	.05950	.00020		
Flat-foot............	270,348	First and second.	Height....	67.30	2.699	± .003	.04010	.00004	.4721	± .0010
			Weight....	143.26	18.413	± .017	.12853	.00012		
	175,358	First......	Height....	67.30	2.687	± .059	.03993	.00004	.4786	± .0012
			Weight....	143.24	18.102	± .021	.12638	.00014		
	94,990	Second....	Height....	67.28	2.723	± .004	.04047	.00006	.4610	± .0017
			Weight....	143.31	18.975	± .030	.13241	.00020		
Defective physical development.	1,292	First and second.	Height....	66.57	3.842	± .051	.05771	.00066	.4644	± .0147
			Weight....	125.51	18.568	± .246	.14794	.00186		
	758	First......	Height....	66.34	4.012	± .070	.06048	.00105	.4600	± .0193
			Weight....	128.94	18.144	± .315	.14072	.00255		
	534	Second....	Height....	66.91	3.561	± .074	.05322	.00103	.5008	± .0219
			Weight....	123.43	18.961	± .391	.15362	.00289		
	1,284	First and second.	Height....	66.57	3.841	± .051	.05770	.00067	.1897	± .0181
			Chest.....	31.85	2.180	± .029	.06845	.00080		
	752	First......	Height....	66.34	4.015	± .070	.06256	.00104	.1792	± .0238
			Chest.....	32.15	2.206	± .038	.06862	.00105		
	532	Second....	Height....	66.90	3.556	± .074	.05315	.00103	.2482	± .0274
			Chest.....	31.43	2.071	± .043	.06589	.00124		
Underweight.......	12,129	First and second.	Height....	65.50	3.360	± .015	.05130	.00021	.6970	± .0031
			Weight....	110.94	9.893	± .043	.08917	.00039		
	2,686	First......	Height....	66.22	3.507	± .032	.05296	.00046	.7339	± .0060
			Weight....	114.67	11.614	± .107	.10128	.00093		
	9,443	Second....	Height....	65.30	3.289	± .016	.05037	.00025	.6873	± .0037
			Weight....	109.88	9.070	± .045	.07566	.00035		
	12,132	First and second.	Height....	65.50	3.357	± .015	.05125	.00021	.2459	± .0058
			Chest.....	30.46	1.531	± .007	.05026	.00021		
	2,708	First......	Height....	66.20	3.509	± .032	.05301	.00046	.2843	± .0019
			Chest.....	30.94	1.720	± .016	.05559	.00046		
	9,424	Second....	Height....	65.30	3.285	± .016	.05031	.00025	.2312	± .0066
			Chest.....	30.32	1.442	± .007	.04756	.00021		
Cryptorchidism, monorchism, anorchism, hypospadia.	4,948	First and second.	Height....	67.44	2.811	± .019	.04168	.00027	.4867	± .0073
			Weight....	140.25	17.908	± .121	.12769	.00087		
	1,808	First......	Height....	67.34	2.803	± .031	.04162	.00045	.5186	± .0116
			Weight....	140.81	18.608	± .209	.13214	.00146		
	3,140	Second....	Height....	67.49	2.814	± .024	.04170	.00034	.4666	± .0094
			Weight....	139.93	17.483	± .149	.12494	.00108		
	4,943	First and second.	Height....	67.44	2.812	± .019	.04170	.00027	.2107	± .0092
			Chest.....	33.03	2.102	± .014	.06364	.00040		
	1,808	First......	Height....	67.34	2.803	± .031	.04162	.00045	.2299	± .0150
			Chest.....	33.18	2.050	± .023	.06178	.00067		
	3,135	Second....	Height....	67.49	2.816	± .024	.04172	.00034	.2029	± .0115
			Chest.....	32.95	2.126	± .018	.06452	.00052		

TABLE 188.—*The mean stature and weight of recruits found with the specified diseases and defects among the first two million draft recruits, arranged in descending order of the means.*

Defect.	Mean stature.	Defect.	Mean weight.
	Inches.		*Pounds.*
Varicose veins	68.43	Varicose veins	146.44
Varicocele	68.37	Flat-foot	143.26
Pulmonary tuberculosis	68.07	Simple goiter	142.36
Exophthalmic goiter	67.97	Hypertrophic tonsillitis	141.79
Simple goiter	67.94	Varicocele	141.75
Mitral insufficiency	67.84	Hernia	141.23
Hemorrhoids	67.80	Cardiac hypertrophy	140.49
Cardiac hypertrophy	67.75	Hemorrhoids	140.39
Tachycardia	67.76	Cryptorchidism	140.25
Mitral stenosis	67.63	Enlarged inguinal rings	140.08
Valvular diseases of heart	67.60	Myopia	139.23
Hypertrophic tonsillitis	67.48	Astigmatism	139.16
Enlarged inguinal rings	67.46	Asthma	139.01
Hernia	67.44	Mitral insufficiency	138.99
Cryptorchidism, etc	67.44	Hyperopia	138.96
Flat-foot	67.30	Exophthalmic goiter	138.82
Defective teeth	67.26	Defective and deficient teeth	138.32
Asthma	67.24	Tachycardia	137.37
Myopia	67.08	Valvular diseases of heart	137.24
Hyperopia	67.08	Mitral stenosis	136.85
Astigmatism	67.07	Pulmonary tuberculosis	130.44
Defective physical development	66.57	Defective physical development	125.51
Underweight	65.50	Underweight	110.94
Average, United States, first million	67.49	Average, United States, first million	141.54

TABLE 189.—*The index of build (weight multiplied by 1,000, divided by the stature squared) and Pignet's index of robustness of recruits found with the specified diseases and defects, arranged in order of standing, first and second million draft recruits.*

Defect.	Index of build.	Defect.	Pignet's index.	Class.
Flat-foot	31.63	Varicose veins	19.90	Good.
Varicose veins	31.28	Hypertrophic tonsillitis	20.85	Average.
Hypertrophic tonsillitis	31.14	Asthma	21.09	Do.
Hernia	31.05	Hernia	21.18	Do.
Myopia	30.95	Astigmatism	21.38	Do.
Astigmatism	30.94	Hyperopia	21.44	Do.
Hyperopia	30.88	Myopia	21.52	Do.
Cryptorchidism	30.84	Cryptorchidism	21.83	Do.
Simple goiter	30.84	Enlarged inguinal rings	21.89	Do.
Enlarged inguinal rings	30.78	Simple goiter	21.94	Do.
Asthma	30.75	Defective teeth	22.31	Do.
Cardiac hypertrophy	30.61	Hemorrhoids	22.50	Do.
Defective teeth	30.58	Cardiac hypertrophy	22.66	Do.
Hemorrhoids	30.54	Varicocele	23.43	Do.
Varicocele	30.33	Mitral insufficiency	24.12	Do.
Mitral insufficiency	30.20	Exophthalmic goiter	24.28	Do.
Exopthalmic goiter	30.05	Tachycardia, simple	24.50	Do.
Valvular diseases of heart (unclassified)	30.04	Valvular disease of heart (unclassified)	24.78	Do.
Mitral stenosis	29.93	Mitral stenosis	24.81	Do.
Tachycardia, simple	29.92	Defective physical development	29.94	Weak.
Defective physical development	28.32	Pulmonary tuberculosis	30.27	Do.
Pulmonary tuberculosis	28.15	Underweight	37.36	Inadequate.
Underweight	25.86			

TABLE 190.—*Variability (standard deviation, in inches, and coefficient of variability) of stature, associated with various defects and diseases, first and second million draft recruits.*

Defect.	Standard of deviation.	Defect.	Coefficient of variability.
Defective physical development	3.842	Defective physical development	0.05771
Underweight	3.360	Underweight	.05130
Cryptorchidism, etc	2.811	Cryptorchidism	.04168
Myopia	2.787	Myopia	.04155
Hemorrhoids	2.782	Hemorrhoids	.04103
Hernia	2.762	Hernia	.04095
Varicocele	2.753	Hyperopia	.04053
Varicose veins	2.742	Astigmatism	.04042
Pulmonary tuberculosis	2.736	Hypertrophic tonsils	.04041
Mitral insufficiency	2.732	Asthma	04030
Hypertrophic tonsils	2.727	Mitral stenosis	.04028
Cardiac hypertrophy	2.725	Mitral insufficiency	.04027
Mitral stenosis	2.724	Varicocele	.04027
Hyperopia	2.719	Cardiac hypertrophy	.04022
Astigmatism	2.711	Pulmonary tuberculosis	.04019
Asthma	2.710	Flat-foot	.04010
Enlarged inguinal rings	2.702	Varicose veins	.04007
Flat-foot	2.699	Enlarged inguinal rings	.04005
Defective teeth	2.689	Defective teeth	.03998
Tachycardia	2.675	Tachycardia	.03948
Valvular diseases of the heart (unclassified)	2.669	Valvular diseases of the heart (unclassified)	.03948
Exophthalmic goiter	2.647	Exophthalmic goiter	.03894
Simple goiter	2.578	Simple goiter	.03794
United States first million recruits	2.714	United States first million recruits	.04021

TABLE 191.—*Variability (standard deviation, in pounds, and coefficient of variability) of weight, associated with various diseases and defects among first and second million draft recruits, arranged in descending order of size.*

Defect.	Standard of deviation.	Defect.	Coefficient of variability.
Varicose veins	18.528	Defective physical development	0.14794
Defective physical development	18.568	Myopia	.13253
Myopia	18.452	Asthma	.12902
Flat-foot	18.413	Flat-foot	.12853
Asthma	17.945	Tachycardia	.12791
Cryptorchidism	17.908	Cryptorchidism	.12769
Hypertrophic tonsils	17.803	Varicose veins	.12652
Tachycardia	17.571	Valvular diseases of the heart (unclassified)	.12641
Valvular diseases of the heart (unclassified)	17.348	Hypertrophic tonsils	.12556
Hernia	17.167	Astigmatism	.12216
Astigmatism	17.000	Defective teeth	.12210
Defective teeth	16.889	Hernia	.12155
Cardiac hypertrophy	16.845	Mitral insufficiency	.12081
Mitral insufficiency	16.791	Cardiac hypertrophy	.11976
Hemorrhoids	16.757	Hemorrhoids	.11936
Enlarged inguinal rings	16.543	Exophthalmic goiter	.11832
Simple goiter	16.498	Enlarged inguinal rings	.11810
Varicocele	16.474	Hyperopia	.11722
Exophthalmic goiter	16.425	Varicocele	.11622
Hyperopia	16.289	Simple goiter	.11588
Mitral stenosis	15.637	Mitral stenosis	.11426
Pulmonary tuberculosis	14.740	Pulmonary tuberculosis	.11300
Underweight	9.893	Underweight	.08917
United States first million recruits	17.420	United States first million recruits	.12307

TABLE 192.—*Relative weight (weight divided by the height) and relative chest circumference (chest circumference (expiration) divided by the height and also by the weight) for men found with special diseases or defects in the first and second million draft recruits, 1917–18.*

Special disease.	Number of men measured.	Mean weight. / Mean height.	Mean chest. / Mean height.	Mean chest. / Mean weight.
		Pounds.	*Inch.*	*Inch.*
Average for the United States (P_1)	873,159	2.097	0.492	0.234
Varicose veins	3,426	2.140	.492	.230
Varicocele	5,849	2.070	.484	.233
Tuberculosis, pulmonary	10,701	1.920	.472	.246
Exophthalmic goiter	2,622	2.040	.483	.237
Goiter, simple	7,099	2.100	.487	.233
Mitral insufficiency	8,860	2.050	.483	.236
Hemorrhoids	1,824	2.070	.488	.236
Tachycardia, simple	2,147	2.030	.484	.239
Cardiac hypertrophy	1,343	2.070	.487	.235
Mitral stenosis	2,512	2.020	.483	.239
Valvular disease of heart	3,419	2.030	.482	.237
Tonsillitis, hypertrophic	52,031	2.100	.492	.234
Inguinal rings, enlarged	43,625	2.090	.490	.236
Hernia	34,324	2.090	.491	.234
Anorchism, monorchism, cryptorchidism, and hypospadia	4,948	2.080	.490	.235
Flat-foot	270,348	2.130	....	....
Defective and deficient teeth	17,983	2.060	.491	.239
Asthma	1,581	2.070	.496	.240
Hyperopia	969	2.070	.493	.238
Myopia	2,420	2.080	.492	.237
Astigmatism	1,592	2.080	.493	.237
Defective physical development	1,292	1.890	.479	.254
Underweight	1,432	1.690	.465	.275

TABLE 193.—*Table for converting centimeters into inches.*

1 centimeter=0.393704 inch.
1 decimeter=3.937040 inches.
1 meter=39.370400 inches.

Centimeters.	Inches.	Centimeters.	Inches.	Centimeters.	Inches.	Centimeters.	Inches.
1	0.394	51	20.079	101	39.764	151	59.449
2	0.787	52	20.473	102	40.158	152	59.843
3	1.181	53	20.866	103	40.552	153	60.237
4	1.575	54	21.260	104	40.945	154	60.630
5	1.969	55	21.654	105	41.339	155	61.024
6	2.362	56	22.047	106	41.733	156	61.418
7	2.756	57	22.441	107	42.126	157	61.812
8	3.150	58	22.835	108	42.520	158	62.205
9	3.543	59	23.229	109	42.914	159	62.599
10	3.937	60	23.622	110	43.307	160	62.993
11	4.331	61	24.016	111	43.701	161	63.386
12	4.724	62	24.410	112	44.095	162	63.780
13	5.118	63	24.803	113	44.489	163	64.174
14	5.512	64	25.197	114	44.882	164	64.567
15	5.906	65	25.591	115	45.276	165	64.961
16	6.299	66	25.984	116	45.670	166	65.355
17	6.693	67	26.378	117	46.063	167	65.749
18	7.087	68	26.772	118	46.457	168	66.142
19	7.480	69	27.166	119	46.851	169	66.536
20	7.874	70	27.559	120	47.244	170	66.930
21	8.268	71	27.953	121	47.638	171	67.323
22	8.661	72	28.347	122	48.032	172	67.717
23	9.055	73	28.740	123	48.426	173	68.111
24	9.449	74	29.134	124	48.819	174	68.504
25	9.843	75	29.528	125	49.213	175	68.898
26	10.236	76	29.922	126	49.607	176	69.292
27	10.630	77	30.315	127	50.000	177	69.686
28	11.024	78	30.709	128	50.394	178	70.079
29	11.417	79	31.103	129	50.788	179	70.473
30	11.811	80	31.496	130	51.182	180	70.867
31	12.205	81	31.890	131	51.575	181	71.260
32	12.599	82	32.284	132	51.969	182	71.654
33	12.992	83	32.677	133	52.363	183	72.048
34	13.386	84	33.071	134	52.756	184	72.442
35	13.780	85	33.465	135	53.150	185	72.835
36	14.173	86	33.859	136	53.544	186	73.229
37	14.567	87	34.252	137	53.937	187	73.623
38	14.961	88	34.646	138	54.331	188	74.016
39	15.354	89	35.040	139	54.725	189	74.410
40	15.748	90	35.433	140	55.119	190	74.804
41	16.142	91	35.827	141	55.512	191	75.197
42	16.536	92	36.221	142	55.906	192	75.591
43	16.929	93	36.614	143	56.300	193	75.985
44	17.323	94	37.008	144	56.693	194	76.379
45	17.717	95	37.402	145	57.087	195	76.772
46	18.110	96	37.796	146	57.481	196	77.166
47	18.504	97	38.189	147	57.874	197	77.560
48	18.898	98	38.583	148	58.268	198	77.953
49	19.291	99	38.977	149	58.662	199	78.347
50	19.685	100	39.370	150	59.056	200	78.740

TABLE 194.—*Table for converting inches into centimeters.*

1 inch = 2.539979 centimeters.
1 foot = 30.479748 centimeters.

Inches.	Centimeters.	Inches.	Centimeters.	Inches.	Centimeters.	Inches.	Centimeters.
1	2.540	26	66.039	51	129.539	76	193.038
2	5.080	27	68.579	52	132.079	77	195.578
3	7.620	28	71.119	53	134.619	78	198.118
4	10.160	29	73.659	54	137.159	79	200.658
5	12.700	30	76.199	55	139.699	80	203.198
6	15.240	31	78.739	56	142.239	81	205.738
7	17.780	32	81.279	57	144.779	82	208.278
8	20.320	33	83.819	58	147.319	83	210.818
9	22.860	34	86.359	59	149.859	84	213.358
10	25.400	35	88.899	60	152.399	85	215.898
11	27.940	36	91.439	61	154.939	86	218.438
12	30.480	37	93.979	62	157.479	87	220.978
13	33.020	38	96.519	63	160.019	88	223.518
14	35.560	39	99.059	64	162.559	89	226.058
15	38.100	40	101.599	65	165.099	90	228.598
16	40.640	41	104.139	66	167.639	91	231.138
17	43.180	42	106.679	67	170.179	92	233.678
18	45.720	43	109.219	68	172.719	93	236.218
19	48.260	44	111.759	69	175.259	94	238.758
20	50.800	45	114.299	70	177.799	95	241.298
21	53.340	46	116.839	71	180.339	96	243.838
22	55.880	47	119.379	72	182.878	97	246.378
23	58.420	48	121.919	73	185.418	98	248.918
24	60.959	49	124.459	74	187.958	99	251.458
25	63.499	50	126.999	75	190.498	100	253.998

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APPENDIX

TABLE I.—*Correlation between height and weight for first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS DERIVED FROM SUMMATION OF SECTION.

Height in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
58 and under 59	3,124	14	69	111	201	259	252	333	325	310	296	243	209	153	93	124	55	17	15	10	8	15	12
60	2,887	19	108	245	367	395	350	270	255	186	165	135	106	92	63	52	24	6	13	4	11	14	7
61	7,477	32	240	616	1,138	1,209	1,123	927	643	440	331	210	196	100	75	59	31	23	14	8	22	36	4
62	15,644	36	351	975	2,081	2,557	2,553	2,221	1,674	1,131	714	456	285	194	139	91	53	38	26	9	18	32	10
63	30,935	38	396	1,263	3,174	4,644	4,972	4,740	3,846	2,777	1,811	1,211	727	418	306	214	136	78	47	31	30	42	34
64	52,547	15	358	1,308	3,812	6,413	7,969	8,104	7,365	5,902	3,974	2,663	1,714	1,018	684	454	255	186	121	93	46	56	37
65	81,904	17	276	1,145	3,911	7,859	10,711	12,344	12,147	10,563	7,773	5,459	3,509	2,159	1,403	934	571	401	267	159	112	99	85
66	109,964	8	202	778	3,042	7,264	11,780	15,198	16,431	15,824	12,610	9,151	6,378	3,911	2,554	1,744	1,096	719	426	292	203	167	186
67	127,844	1	128	497	1,902	5,483	10,196	15,071	18,123	18,930	16,553	13,363	9,600	6,305	4,015	2,753	1,689	1,086	698	496	356	281	318
68	129,987	3	77	251	1,005	3,105	7,320	12,018	16,310	18,872	18,081	15,786	12,077	8,376	5,833	3,945	2,383	1,558	981	684	450	352	520
69	110,508	1	36	100	442	1,453	3,863	7,607	11,594	14,449	15,496	14,503	12,306	9,162	6,587	4,713	2,751	1,803	1,199	813	574	375	681
70	83,702	....	50	65	189	573	1,676	3,809	6,746	9,626	11,378	11,482	10,568	8,120	6,390	4,513	2,924	1,870	1,267	775	584	404	693
71	54,357	....	28	34	45	191	551	1,440	3,016	4,844	6,524	7,283	7,354	6,308	5,088	3,886	2,598	1,726	1,146	737	517	360	681
72	31,370	....	18	23	41	60	166	446	1,152	2,073	3,185	3,721	4,285	3,950	3,455	2,688	2,018	1,399	892	552	426	285	535
73	15,198	....	6	12	17	12	35	127	301	665	1,187	1,593	1,923	1,926	1,829	1,612	1,239	860	608	377	252	210	407
74	6,391	....	5	5	9	5	16	27	88	174	339	503	747	754	809	739	639	480	338	212	160	116	228
75	2,620	....	3	4	5	6	8	16	21	33	97	162	234	316	304	328	279	224	182	130	78	63	127
76	1,071	....	3	......	4	4	4	11	16	27	29	55	79	112	109	133	137	96	85	49	32	26	60
77	360	....	2	......	1	3	8	3	5	19	15	28	23	25	22	40	40	28	33	14	12	14	25
78	259	....	2	2	......	3	2	1	10	18	21	27	21	16	18	20	18	22	17	10	8	9	14
79	296	....	......	1	2	5	12	13	16	26	28	23	21	16	21	21	18	9	10	12	8	10	24
Total	868,445	184	2,356	7,435	21,388	41,503	63,567	84,726	100,084	106,889	100,607	88,057	72,362	53,431	39,797	29,063	18,954	12,629	8,385	5,467	3,907	2,966	4,688

Number of cases: 868,445. Height: Mean, 67.49 inches; standard deviation, 2.71 ± 0.0014 inch. Weight: Mean, 141.54 pounds; standard deviation, 17.42 ± 0.0089 pound. Correlation: 0.4810 ± 0.0006.

TABLE I.—*Correlation between height and weight for first million draft recruits*—Continued.

SECTION B: RATIO PER 1,000 OF THE SEPARATE WEIGHTS SHOWN FOR EACH HEIGHT.

Height, in inches.	Proportion each height per 1,000.	Weight, in pounds.																						Total.[a]
		95-99	100-104	105-109	110-114	115-119	120-124	125-129	130-134	135-139	140-144	145-149	150-154	155-159	160-164	165-169	170-174	175-179	180-184	185-189	190-194	195-199	200-204	
59	3.63	4.48	22.09	35.53	64.34	82.91	80.67	106.59	104.03	99.23	94.75	77.78	66.90	48.98	29.77	39.69	17.60	5.44	4.80	3.20	2.56	4.80	3.84	1,000−
60	3 32	6.58	37.41	84.87	127.12	136.82	121.23	93.53	88.33	64.43	57.16	46.77	36.72	31.87	21.82	18.01	8.31	2.08	4.50	1.39	3.81	4.85	2.42	1,000+
61	8.61	4.28	32.10	82.38	152.20	161.70	150.19	123.98	86.00	58.85	44.27	28.09	26.21	13.37	10.03	7.89	4.15	3.08	1.87	1.07	2.94	4.81	.53	1,000−
62	18.01	2.30	22.44	62.33	133.02	163.45	163.19	141.97	107.01	72.30	45.64	29.15	18.22	12.40	8.89	5.82	3.39	2.43	1.66	.58	1.15	2.05	.64	1,000+
63	35.62	1.23	12.80	40.83	102.60	150.12	160.72	153.22	124.32	89.77	58.52	39.15	23.50	13.51	9.89	6.92	4.40	2.52	1.52	1.00	.97	1.36	1.10	1,000−
64	60.51	.29	6.81	24.90	72.56	122.04	151.65	154.22	140.16	112.32	75.64	50.68	32.62	19.37	13.02	8.64	4.85	3.54	2.30	1.77	.88	1.07	.70	1,000+
65	94.31	.21	3.37	13.98	47.75	95.95	130.78	150.71	148.31	128.97	94.91	66.65	42.84	26.36	17.13	11.40	6 97	4.90	3.26	1.94	1.37	1.21	1.04	1,000+
66	126.62	.07	1.84	7.08	27.66	66 06	107.13	138.21	149.41	143.90	114.67	83.21	58.00	35.57	23.23	15.86	9.97	6.54	3.87	2.66	1.85	1.52	1.69	1,000
67	147.21	.01	1.00	3.89	14.88	42.89	79.75	117.89	141.76	148.07	129.48	104.53	75.09	49.32	31.41	21.53	13.21	8.50	5.46	3.88	2.78	2.20	2.49	1,000+
68	149.68	.02	.59	1.93	7.73	23.89	56.31	92.46	125.48	145.19	139.10	121.45	92.91	64.45	44.88	30.35	18.33	11.99	7.55	5.26	3.46	2.71	3.99	1,000+
69	127.25	.01	.33	.90	4.00	13.15	34.95	68.83	104.92	130.75	140.23	131.24	111.36	82.93	59.61	42.65	24.90	16.32	10.85	7.36	5.19	3.39	6.16	1,000+
70	96.38	......	.60	.78	2.26	6.85	20.02	45.51	80.60	115.00	135.93	137.17	126.26	97.01	76.34	53.92	34.93	22.34	15.14	9.26	6.98	4.83	8.28	1,000+
71	62.59	......	.52	.63	.83	3.51	10.14	26.49	55.48	89.12	120.03	133.99	135.29	116.05	93.60	71.49	47.80	31.75	21.08	13.56	9.51	6.62	12.53	1,000+
72	36.12	......	.57	.73	1.31	1.91	5.29	14.22	36.72	66.08	101.53	118.62	136.60	125.92	110.14	85.69	64.33	44.60	28.43	17.60	13.58	9.09	17.05	1,000+
73	17.50	......	.39	.79	1.12	.79	2.30	8.36	19.81	43.76	78.10	104.82	126.53	126.73	120.35	106.07	81.52	56.59	40.01	24.81	16.58	13.82	26.78	1,000+
74	7.36	......	.47	.78	1.41	.78	2.50	4.22	13.77	27.23	53.04	78.70	116.88	117.98	126.58	115.63	99.98	75.11	52.89	33.17	25.04	18.15	35.68	1,000−
75	3.02	......	1.15	1.53	1.91	2.29	3.05	6.11	8.02	12.60	37.02	61.83	89.31	120.61	116.03	125.19	106.49	85.50	69.47	49.62	29.77	24.05	48.47	1,000+
76	1.23	......	2.80	......	3.73	3.73	3.73	10.27	14.94	25.21	27.08	51.35	73.76	104.58	101.77	124.18	127.92	89.63	79.36	45.75	29.88	24.28	56.02	1,000−
77	.41	......	5.56	......	2.78	8.33	22.22	8.33	13.89	52.78	41.67	77.78	63.89	69.44	61.11	111.11	111.11	77.78	91.67	38.89	33.33	38.89	69.44	1,000
78	.30	......	7.72	7.72	......	11.58	7.72	3.86	38.61	69.49	81.08	104.25	81.08	61.78	69.50	77.22	69.50	84.94	65.64	38.61	30.89	34.75	54.05	1,000−
79	34	......	......	3.38	6.76	16.89	40.54	43.92	54.05	87.84	94.59	77.70	70.95	54.05	70.95	70.95	60.81	30.40	33.78	40.54	27.03	33.78	81.08	1,000−
Total.	......	.21	2.71	8.56	24.63	47.79	73.20	97.56	115.24	123.08	115.85	101.40	83.32	61.53	45.82	33.47	21.83	14.54	9.66	6.30	4.50	3.42	5.40	1,000+

SECTION C: RATIO PER 1,000 OF THE SEPARATE HEIGHTS SHOWN FOR EACH WEIGHT.

Weight in pounds.	Proportion each weight per 1,000.	Height, in inches. 59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	Total.[a]
95-99	0.21	76.09	103.26	173.91	195.65	206.52	81.52	92.39	43.48	5.43	16.30	5.43	......	......	......	......	......	......	......	......	......	......	......	1,000−
100-104	2.71	29.29	45.84	101.87	148.98	168.08	151.95	117.15	85.74	54.33	32.68	15.28	21.22	11.88	7.64	2.55	1.27	1.27	1.27	0.85	0.85	......	......	1,000−
105-109	8.56	14.93	32.95	82.85	131.14	169.87	175.92	154.00	104.64	66.85	33.76	13.45	8.74	4.57	3.09	1.61	.67	.54	......	......	.27	0.13	......	1,000−
110-114	24.63	9.40	17.16	53.21	97.30	148.40	178.23	182.86	142.23	88.93	46.99	20.67	8.84	2.10	1.92	.79	.42	.23	.19	.05	......	.09	......	1,000+
115-119	47.79	6.24	9.52	29.13	61.61	111.90	154.52	189.36	175.02	132.11	74.81	35.01	13.81	4.60	1.45	.29	.12	.14	.10	.07	.07	.12	......	1,000
120-124	73.20	3.96	5.51	17.67	40.16	78.22	125.36	168.50	185.32	160.40	115.15	60.77	26.37	8.67	2.61	.55	.25	.13	.06	.13	.03	.19	......	1,000+
125-129	97.56	3.93	3.19	10.94	26.21	55.95	95.65	145.69	179.38	177.88	141.85	89.78	44.96	17.00	5.26	1.50	.32	.19	.13	.04	.01	.15	......	1,000+
130-134	115.24	3.25	2.55	6.42	16.73	38.43	73.59	121.37	164.17	181.08	162.96	115.84	67.40	30.13	11.51	3.01	.88	.21	.16	.05	.10	.16	......	1,000
135-139	123.08	2.90	1.74	4.12	10.58	25.98	55.22	98.82	148.04	177.10	176.56	135.18	90.06	45.32	19.39	6.22	1.63	.31	.25	.18	.17	.24	......	1,000+
140-144	115.85	2.94	1.64	3.29	7.10	18.00	39.50	77.26	125.34	164.53	179.72	154.03	113.09	64.85	31.66	11.80	3.37	.96	.29	.15	.21	.28	......	1,000+
145-149	101.40	2.76	1.53	2.38	5.18	13.75	30.24	61.99	103.92	151.75	179.27	164.70	130.39	82.71	42.26	18.09	5.71	1.84	.62	.32	.31	.26	......	1,000−
150-154	83.32	2.89	1.46	2.71	3.94	10.05	23.69	48.49	88.14	132.67	166.90	170.06	146.04	101.63	59.22	26.57	10.32	3.23	1.09	.32	.29	.29	......	1,000
155-159	61.53	2.86	1.72	1.87	3.63	7.82	19.05	40.41	73.20	118.00	156.76	171.47	151.97	118.06	73.93	36.05	14.11	5.91	2.10	.47	.30	.30	......	1,000−
160-164	45.82	2.34	1.58	1.88	3.49	7.69	17.19	35.25	64.18	100.89	146.57	165.51	160.56	127.85	86.82	45.96	20.33	7.64	2.74	.55	.45	.53	......	1,000
165-169	33.47	4.27	1.79	2.03	3.13	7.36	15.62	32.14	60.01	94.73	135.74	162.16	155.28	133.71	92.49	55.47	25.43	11.29	4.58	1.38	.69	.72	......	1,000+
170-174	21.83	2.90	1.27	1.64	2.80	7.18	13.45	30.13	57.82	89.11	125.73	145.14	154.27	137.07	106.47	65.37	33.71	14.72	7.23	2.11	.95	.95	......	1,000+
175-179	14.54	1.35	.48	1.82	3.01	6.18	14.73	31.75	56.93	85.99	123.37	142.77	148.07	136.67	110.78	68.10	38.01	17.74	7.60	2.22	1.74	.71	......	1,000+
180-184	9.66	1.79	1.55	1.67	3.10	5.61	14.43	31.84	50.81	83.24	116.99	142.99	151.10	136.67	106.38	72.51	40.31	21.71	10.14	3.94	2.03	1.19	......	1,000
185-189	6.30	1.83	.73	1.46	1.65	5.67	17.01	29.08	53.41	90.73	125.11	148.71	141.76	134.81	100.97	68.96	38.78	23.78	8.96	2.56	1.83	2.19	......	1,000−
190-194	4.50	2.05	2.82	5.63	4.61	7.68	11.77	28.67	51.96	91.12	115.18	146.92	149.48	132.33	109.04	64.50	40.95	19.96	8.19	3.07	2.05	2.05	......	1,000+
195-199	3.42	5.06	4.72	12.14	10.79	14.16	18.88	33.38	56.30	94.74	118.68	126.43	136.21	121.38	96.09	70.80	39.11	21.24	8.77	4.72	3.03	3.37	......	1,000
200-204	5.40	2.56	1.49	.85	2.13	7.25	7.89	18.13	39.68	67.83	110.92	145.26	147.82	145.26	114.12	86.82	48.63	27.09	12.80	5.33	2.99	5.12	......	1,000−
Total	....	3.60	3.32	8.61	18.01	35.62	60.51	94.31	126.62	147.21	149.68	127.25	96.38	62.59	36.12	17.50	7.36	3.02	1.23	.41	.30	.34	......	1,000−

[a] The maximum or minimum value of the + or − did not exceed 0.03.

TABLE II.—*Correlation between height and chest circumference (expiration), first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS DERIVED FROM SUMMATION OF SECTIONS.

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	3,086	128	241	366	622	586	480	331	172	76	52	32
60	2,921	164	331	459	595	530	402	221	124	50	22	23
61	7,572	444	910	1,474	1,545	1,336	912	525	246	97	46	37
62	15,848	850	1,822	2,884	3,503	2,810	1,941	1,105	541	229	87	76
63	31,207	1,407	3,316	5,500	6,678	5,902	4,024	2,328	1,113	522	226	191
64	52,923	2,153	4,940	8,920	11,189	9,990	7,419	4,314	2,163	1,030	464	341
65	82,426	2,759	6,757	12,514	17,125	16,150	12,347	7,618	3,895	1,806	802	653
66	110,816	2,884	7,708	15,679	22,330	22,824	17,708	11,030	5,768	2,616	1,231	1,038
67	128,291	2,583	7,589	16,349	24,885	26,558	22,018	14,015	7,722	3,613	1,611	1,348
68	130,624	2,053	6,289	14,586	24,163	27,306	23,628	15,945	8,846	4,182	1,991	1,635
69	111,123	1,295	4,290	10,779	18,997	23,133	21,393	14,890	8,732	4,051	1,927	1,636
70	83,880	739	2,603	6,921	13,261	17,291	16,741	12,290	7,391	3,567	1,698	1,378
71	54,609	362	1,350	3,896	7,731	10,833	11,518	8,642	5,306	2,654	1,235	1,082
72	31,523	155	611	1,877	4,046	6,054	6,614	5,252	3,511	1,794	862	747
73	15,284	70	201	709	1,652	2,798	3,203	2,853	1,905	995	468	430
74	6,411	21	79	217	645	1,070	1,386	1,176	872	498	237	210
75	2,620	12	29	83	223	375	532	516	409	227	124	90
76	1,080	....	14	44	103	163	217	209	159	88	38	45
77	361	2	4	14	29	61	68	64	61	32	10	16
78	256	6	1	8	21	39	56	47	37	27	9	5
79	298	6	5	15	36	49	56	43	42	21	11	14
Total	873,159	18,093	49,090	103,294	159,379	175,858	152,663	103,414	59,015	28,175	13,151	11,027

Number of cases: 873,159. Height: Mean, 67.49 inches; standard deviation, 2.72±0.0014 inch. Chest circumference (expiration): Mean, 33.22 inches; standard deviation, 2.01±0.0010 inch. Correlation: 0.2304±0.0007.

SECTION B: RATIO PER 1,000 OF THE SEPARATE CHEST MEASUREMENTS TO EACH HEIGHT.

Height, in inches.	Proportion each height per 1,000.	Chest, in inches. 29	30	31	32	33	34	35	36	37	3	39	Total.[a]
59	3.53	41.48	78.09	118.60	201.56	189.89	155.53	107.26	55.74	24.63	16.85	10.37	1,000
60	3.35	56.15	113.32	157.12	203.70	181.44	137.62	75.70	42.45	17.12	7.53	7.87	1,000+
61	8.67	58.64	120.18	194.68	204.05	176.44	120.45	69.34	32.49	12.81	6.08	4.89	1,000+
62	18.15	53.64	114.96	181.98	221.04	177.31	122.47	69.73	34.14	14.45	5.49	4.80	1,000+
63	35.74	45.09	106.26	176.24	214.00	189.12	128.94	74.63	35.67	16.73	7.24	6.12	1,000+
64	60.61	40.68	93.34	168.55	211.43	188.77	140.19	81.52	40.87	19.46	8.77	6.44	1,000+
65	94.40	33.47	81.98	151.81	207.77	195.94	149.80	92.42	47.25	21.91	9.73	7.92	1,000
66	126.91	26.03	69.56	141.49	201.51	205.97	159.80	99.54	52.05	23.61	11.11	9.37	1,000+
67	146.92	20.13	59.15	127.43	193.99	207.00	171.61	109.25	60.19	28.16	12.56	10.51	1,000−
68	149.60	15.72	48.14	111.66	185.00	209.04	180.88	122.06	67.72	32.01	15.24	12.52	1,000−
69	127.27	11.65	38.61	97.00	170.96	208.19	192.51	134.00	78.58	36.45	17.34	14.72	1,000+
70	96.07	8.81	31.03	82.51	158.10	206.14	199.60	146.52	88.11	42.52	20.24	16.43	1,000+
71	62.54	6.63	24.72	71.35	141.57	198.39	210.94	158.25	97.16	48.60	22.62	19.81	1,000+
72	36.10	4.92	19.38	59.57	128.34	192.05	209.81	166.60	111.37	56.91	27.35	23.70	1,000
73	17.50	4.58	13.15	46.39	108.09	183.07	209.56	186.66	124.64	65.10	30.62	28.13	1,000−
74	7.34	3.28	12.32	33.85	100.61	166.91	216.20	183.44	136.02	77.68	36.97	32.76	1,000+
75	3.00	4.58	11.07	31.68	85.12	143.13	203.05	196.94	156.10	86.64	47.33	34.35	1,000−
76	1.24	....	12.96	40.74	95.37	150.92	200.91	193.51	147.21	81.48	35.18	41.66	1,000−
77	.41	5.54	11.08	38.78	80.34	168.98	188.36	177.29	168.98	88.64	27.70	44.32	1,000+
78	.29	23.44	3.91	31.25	82.04	152.34	218.75	183.60	144.53	105.47	35.16	19.53	1,000+
79	.34	20.13	16.78	50.34	120.81	164.41	187.91	144.29	140.94	70.47	36.92	46.98	1,000−
Total	....	20.74	56.22	118.30	182.54	201.42	174.85	118.42	67.60	32.27	15.06	12.63	1,000+

SECTION C: RATIO PER 1,000 OF THE SEPARATE HEIGHTS TO EACH CHEST MEASUREMENT.

Chest, in inches.	Proportion each chest per 1,000.	Height, in inches. 59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	Total.[a]
29	20.74	7.07	9.06	24.54	46.98	77.77	119.00	152.50	159.40	142.76	113.48	71.58	40.85	20.01	8.57	3.87	1.16	0.66	......	0.11	0.33	0.33	1,000+
30	56.22	4.91	6.74	18.54	37.12	67.55	100.63	137.64	157.02	154.60	128.12	87.39	53.03	27.50	12.45	4.09	1.61	.59	0.29	.08	.02	.10	1,000+
31	118.30	3.54	4.44	14.27	27.92	53.24	86.36	121.14	151.79	128.26	141.22	104.35	67.00	37.71	18.17	6.86	2.10	.80	.43	.14	.08	.15	1,000−
32	182.54	3.90	3.73	9.69	21.98	41.90	70.20	107.45	140.10	156.14	151.60	119.19	83.20	48.50	25.38	10.36	4.05	1.40	.65	.18	.13	.23	1,000−
33	201.42	3.33	3.01	7.60	15.98	33.56	56.81	91.83	129.78	151.01	155.27	131.53	98.32	61.60	34.42	15.91	6.08	2.13	.93	.35	.22	.28	1,000−
34	174.85	3.14	2.63	5.97	12.71	26.36	48.60	80.87	115.98	144.21	154.75	140.13	109.66	75.45	43.32	20.98	9.08	3.48	1.42	.45	.37	.37	1,000−
35	118.42	3.20	2.14	5.08	10.68	22.51	41.71	73.66	106.65	135.52	154.17	144.00	118.84	83.56	50.78	27.59	11.37	4.99	2.02	.62	.45	.42	1,000−
36	67.60	2.91	2.10	4.17	9.17	18.86	36.65	66.00	97.74	130.84	149.90	147.96	125.25	89.91	59.49	32.28	14.78	6.93	2.69	1.03	.63	.71	1,000
37	32.27	2.70	1.77	3.44	8.13	18.53	36.56	64.10	92.85	128.23	148.42	143.77	126.60	94.19	63.68	35.32	17.67	8.06	3.12	1.14	.96	.75	1,000−
38	15.06	3.95	1.67	3.50	6.62	17.18	35.28	60.99	93.53	122.51	151.40	146.53	129.12	93.91	65.55	35.59	18.02	9.43	2.89	.76	.68	.84	1,000−
39	12.63	2.90	2.09	3.36	6.89	17.32	30.93	59.22	94.14	122.25	148.26	148.35	124.97	98.13	67.75	39.00	19.04	8.16	4.08	1.45	.45	1.27	1,000+
Total	....	3.53	3.35	8.67	18.15	35.74	60.61	94.40	126.92	146.92	149.60	127.38	96.07	62.55	36.10	17.50	7.34	2.00	1.24	.41	.29	.34	1,000+

[a] The maximum or minimum value of the + or − did not exceed 0.03.

TABLE III.—*Correlation between weight and chest circumference (expiration), first million draft recruits.*

SECTION A: ABSOLUTE NUMBERS DERIVED FROM SUMMATION OF SECTIONS.

Chest, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	17,933	143	838	1,991	3,593	3,926	2,950	1,971	1,083	539	288	161	99	47	40	55	39	20	6	14	23	84	23
30	49,056	38	639	2,294	6,079	9,489	9,979	8,298	5,619	3,377	1,593	694	363	171	104	96	58	48	13	17	19	58	10
31	103,277	19	407	1,730	6,113	12,525	17,874	19,724	17,417	12,603	7,482	3,853	1,723	805	398	240	128	91	47	29	23	32	14
32	159,456	8	158	795	3,534	9,485	17,588	25,462	29,071	36,744	20,134	12,776	7,200	3,417	1,599	826	324	172	61	44	21	28	9
33	175,770	1	85	280	1,365	4,245	10,119	17,984	25,898	30,426	28,569	22,765	15,641	9,064	4,855	2,570	1,063	479	171	93	46	40	11
34	152,555	1	48	82	353	1,275	3,832	8,189	14,566	20,766	24,111	24,087	20,428	14,375	9,446	5,825	2,784	1,272	601	277	145	64	28
35	103,381	1	23	41	100	350	1,044	2,506	5,167	9,083	12,909	15,129	15,819	13,548	10,564	7,576	4,427	2,527	1,389	627	326	151	74
36	58,867	2	26	38	57	114	231	615	1,388	2,754	4,492	6,408	7,942	7,964	7,828	6,353	4,958	3,230	1,990	1,183	664	366	264
37	28,121	.....	20	27	34	69	72	149	306	593	1,108	1,872	2,589	3,126	3,528	3,634	3,098	2,628	1,880	1,307	863	584	634
38	13,065	.....	29	34	48	31	44	71	77	123	226	416	643	905	1,273	1,433	1,508	1,424	1,282	1,066	810	656	966
39	5,828	.....	21	37	53	91	59	50	57	57	58	78	116	188	284	412	509	558	598	546	526	509	1,021
40	5,110	.....	19	42	53	65	74	53	66	64	70	77	55	78	79	121	156	243	272	363	387	395	2,378
Total	872,419	213	2,313	7,391	21,382	41,665	63,866	85,072	100,715	107,129	101,040	88,316	72,618	53,688	39,998	29,141	19,052	12,692	8,310	5,566	3,853	2,967	5,432

Number of cases: 872,419. Weight: Mean, 141.59 pounds; standard deviation, 17.49 ±0.0089 pound. Chest circumference (expiration): Mean, 33.23 inches, standard deviation, 2.03 ±0.0010 inch. Correlation: 0.6907 ±0.0003.

SECTION B: RATIO PER 1,000 OF THE SEPARATE WEIGHTS TO EACH CHEST MEASUREMENT.

Chest circumference, in inches.	Proportion each chest per 1,000.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204	Total.[a]
29	20.56	7.97	46.73	111.02	200.36	218.93	164.50	109.91	60.40	30.05	16.06	8.96	5.52	2.62	2.23	3.07	2.17	1.12	0.33	0.78	1.28	4.68	1.28	1,000−
30	56.23	.77	13.03	46.77	123.92	193.43	203.42	169.16	114.54	68.84	32.47	14.15	7.40	3.49	2.12	1.96	1.18	.98	.27	.35	.39	1.18	.20	1,000+
31	118.38	.18	3.94	16.75	59.19	121.28	173.06	190.98	168.64	122.03	72.45	37.31	16.68	7.79	3.85	2.32	1.24	.88	.46	.28	.22	.31	.14	1,000−
32	182.77	.05	.99	4.99	22.16	59.48	110.30	159.68	182.31	167.72	126.27	80.12	45.15	21.43	10.03	5.18	2.03	1.08	.38	.28	.13	.18	.06	1,000
33	201.47	.01	.48	1.59	7.77	24.15	57.57	102.31	147.33	173.09	162.53	129.51	88.98	51.57	27.62	14.62	6.05	2.73	.97	.53	.26	.23	.06	1,000−
34	174.86	.01	.31	.54	2.31	8.36	25.12	53.68	95.48	136.12	158.05	157.89	133.91	94.23	61.92	38.18	18.25	8.34	3.94	1.82	.95	.42	.18	1,000+
35	118.50	.01	.22	.40	.97	3.39	10.10	24.24	49.98	87.86	124.87	146.34	153.02	131.05	102.19	73.28	42.82	24.44	13.44	6.06	3.15	1.46	.72	1,000+
36	67.48	.03	.44	.65	.97	1.94	3.92	10.45	23.58	46.78	76.31	108.86	134.91	135.29	132.98	107.92	84.22	54.87	33.81	20.10	11.28	6.22	4.48	1,000+
37	32.23	......	.71	.96	1.21	2.45	2.56	5.30	10.88	21.09	39.40	66.57	92.07	111.16	125.46	129.23	110.17	93.45	66.85	46.48	30.69	20.77	22.55	1,000+
38	14.98	......	2.22	2.60	3.67	2.37	3.37	5.43	5.89	9.41	17.30	31.84	49.22	69.27	97.44	109.68	115.42	108.99	98.12	81.59	62.00	50.21	73.94	1,000−
39	6.68	......	3.60	6.35	9.09	15.61	10.12	8.58	9.78	9.78	9.95	13.38	19.90	32.26	48.73	70.69	87.34	95.74	102.61	93.69	90.25	87.34	175.19	1,000−
40	5.86	......	3.72	8.22	10.37	12.72	14.48	10.37	12.92	12.52	13.70	15.07	10.76	15.26	15.46	23.68	30.53	47.55	53.23	71.04	75.73	77.30	465.36	1,000−
Total	....	.24	2.65	8.47	24.51	47.76	73.21	97.51	115.44	122.80	115.82	101.23	83.24	61.54	45.85	33.40	21.84	14.55	9.53	6.38	4.42	3.40	6.23	1,000+

SECTION C: RATIO PER 1,000 OF THE SEPARATE CHEST MEASUREMENTS TO EACH WEIGHT.

Weight, in pounds.	Proportion each weight per 1,000.	Chest, in inches.												Total.[a]
		29	30	31	32	33	34	35	36	37	38	39	40	
95-99	2.24	671.36	178.40	89.20	37.56	4.69	4.69	4.69	9.39					1,000−
100-101	2.65	362.30	276.26	175.96	68.31	36.75	20.75	9.94	11.24	8.65	12.54	9.08	8.21	1,000−
105-109	8.47	269.38	310.38	234.07	107.56	37.88	11.09	5.55	5.14	3.65	4.60	5.01	5.68	1,000−
110-114	24.51	168.04	284.30	285.89	165.28	63.84	16.51	4.68	2.67	1.59	2.24	2.48	2.48	1,000
115-119	47.76	94.23	227.75	300.61	227.65	101.88	30.60	8.40	2.74	1.66	.74	2.18	1.56	1,000
120-124	73.21	46.19	156.25	279.87	275.39	158.44	60.00	16.35	3.62	1.13	.69	.92	1.16	1,000+
125-129	97.51	23.17	97.55	231.85	299.30	211.40	96.26	29.46	7.23	1.75	.83	.59	.62	1,000+
130-134	115.44	10.75	55.80	172.94	288.65	257.14	144.63	51.30	13.78	3.04	.76	.57	.66	1,000+
135-139	122.80	5.03	31.52	117.64	249.64	284.01	193.84	84.79	25.71	5.54	1.15	.53	.60	1,000
140-144	115.82	2.85	15.77	74.05	199.27	282.75	238.63	127.76	44.46	10.97	2.24	.57	.69	1,000+
145-149	101.23	1.82	7.86	43.63	144.66	257.77	272.74	171.31	72.56	21.20	4.71	.88	.87	1,000+
150-154	83.24	1.36	5.00	23.73	99.15	215.39	281.31	217.84	109.37	35.65	8.85	1.60	.76	1,000+
155-159	61.54	.88	3.19	14.99	63.65	168.83	267.75	252.35	148.34	58.23	16.86	3.50	1.45	1,000+
160-164	45.85	1.01	2.60	9.95	39.98	121.38	236.16	264.11	195.71	88.20	31.83	7.10	1.98	1,000+
165-169	33.40	1.89	3.29	8.24	28.34	88.19	199.89	259.98	218.01	124.70	49.17	14.14	4.15	1,000−
170-174	21.84	2.05	3.04	6.72	17.01	55.79	146.13	232.36	260.24	162.61	79.15	26.72	8.19	1,000+
175-179	14.55	1.58	3.78	7.17	13.55	37.74	100.22	199.10	254.49	207.06	112.20	43.96	19.15	1,000
180-184	9.53	.72	1.56	5.66	7.34	20.58	72.32	167.15	239.47	226.23	154.27	71.96	32.73	1,000−
185-189	6.38	2.52	3.05	5.21	7.91	16.71	49.77	112.65	212.54	234.82	191.52	98.10	65.22	1,000+
190-194	4.42	5.97	4.93	5.97	5.45	11.94	37.33	84.61	172.33	223.98	210.23	136.52	100.44	1,000
195-199	3.40	28.31	19.55	10.79	9.44	13.48	21.57	50.89	123.36	196.83	221.10	171.55	133.13	1,000
200-204	6.23	4.23	1.84	2.58	1.66	2.03	5.15	13.62	48.60	116.72	177.84	187.96	437.78	1,000+
Total		20.56	56.23	118.38	182.77	201.47	174.86	118.50	67.48	32.23	14.98	6.68	5.86	1,000

[a] The maximum or minimum value of the + or − did not exceed 0.03.

TABLE IV.—*Mean height, by groups and component sections, arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits.*

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Average for the United States. Table I			868,445	67.49	2.71	2.097	0.4920
Mountain whites	12		21,254	68.29	2.57	2.050	.4862
Kentucky	1	Native parentage, white, 96.4 per cent; foreign parentage, 0.7 per cent; foreign born, white, 0.3 per cent; Negro, 2.5 per cent.	4,033	68.21	2.51	2.051	.4860
North Carolina	1	Native parentage, white, 90.8 per cent; foreign parentage, 0.5 per cent; foreign born, white, 0.2 per cent; Negro, 8.3 per cent.	2,738	68.67	2.55	2.056	.4890
South Carolina	1	Native parentage, white, 67.8 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.3 per cent; Negro, 31.4 per cent.	1,564	68.19	2.83	2.060	.4840
Tennessee	3	Native parentage, white, 89.5 per cent; foreign parentage, 1.1 per cent; foreign born, white, 0.6 per cent; Negro, 9.3 per cent.	5,900	68 43	2.51	2.050	.4810
Virginia	4	Native parentage, white, 88 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.8 per cent; Negro, 10.2 per cent.	5,512	68.14	2.54	2.055	.4890
West Virginia	1	Native parentage, white, 86.8 per cent; foreign parentage, 3.7 per cent; foreign born, white, 4.8 per cent; Negro, 4.5 per cent.	1,507	67.98	2.71	2.072	.4880
Agricultural, native white, South	3		117,890	68.18	2.64	2.070	.4854
Alabama	3	Native parentage, white, 67.6 per cent; Negro, 31 per cent	2,670	68.21	2.74	2.062	.4840
Arkansas	2	Native parentage, white, 96.9 per cent; Negro, 0.7 per cent	1,559	68.64	2.60	2.050	.4840
Do	3	Native parentage, white, 83.9 per cent; Negro, 12 per cent	3,607	68.22	2.64	2.063	.4850
Kentucky	2	Native parentage, white, 76.4 per cent; Negro, 14.4 per cent	11,469	67.95	2.62	2.060	.4840
Louisiana	3	Native parentage, white, 61 per cent; Negro, 34.4 per cent	5,235	67.89	2.69	2.064	.4880
Maryland	3	Native parentage, white, 73.4 per cent; Negro, 14.8 per cent	2,683	67.26	2.48	2.090	.4960
Mississippi	2	Native parentage, white, 64.5 per cent; Negro, 33.4 per cent	3,394	68.44	2.66	2.070	.4800
Missouri	1	Native parentage, white, 81.4 per cent; Negro, 3.2 per cent	13,588	68.09	2.59	2.080	.4860
Do	3	Native parentage, white, 94.4 per cent; Negro, 0.3 per cent	1,139	68.63	2.51	2.080	.4850
North Carolina	2	Native parentage, white, 70.7 per cent; Negro, 24.7 per cent	4,309	68.26	2.57	2.066	.4860
Do	3	Native parentage, white, 60.9 per cent; Negro, 38.1 per cent	2,053	68.24	2.72	2.074	.4850
Do	6	Native parentage, white, 57.1 per cent; Negro, 41.2 per cent	744	67.73	2.63	2.076	.4890
Oklahoma	1	Native parentage, white, 72.6 per cent; Negro, 13.7 per cent	8,471	68.16	2.59	2.078	.4850
Do	2	Native parentage, white, 82.7 per cent; Negro, 5 per cent	10,958	68.37	2.57	2.090	.4850
Tennessee	2	Native parentage, white, 74.1 per cent; Negro, 22 per cent	6,308	68.29	2.60	2.040	.4840
Texas	2	Native parentage, white, 77.6 per cent; Negro, 15.9 per cent	22,372	68.50	2.60	2.080	.4800
Do	4	Native parentage, white, 52.3 per cent; Negro, 26.8 per cent	2,722	68.09	2.70	2.090	.4870
Virginia	3	Native parentage, white, 64.8 per cent; Negro, 33.2 per cent	5,512	68.12	2.73	2.066	.4890
West Virginia	2	Native parentage, white, 86.8 per cent; Negro, 4.5 per cent	10,860	67.85	2.70	2.087	.4910
Mexican, sparsely settled	14		11,064	68.16	2.69	2.090	.4870
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	68.02	2.73	2.106	.4890
Do	2	Indians, Chinese, and Japanese, 6.6 per cent; Mexicans, 7.8 per cent	2,823	68.17	2.61	2.096	.4870
New Mexico	3	Mexicans, 14.3 per cent; native parentage, 61.5 per cent	540	67.89	2.73	2.048	.4800
Texas 1	1	Mexicans, 17.1 per cent; native parentage, 44.1 per cent	6,676	68.19	2.70	2.080	.4870

Indian, sparsely settled	13		10,038	68.12	2.61	2.080	.4860
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	68.02	2.73	2.106	.4890
New Mexico	1	Indians, 29.1 per cent; native parentage, white, 61.1 per cent	293	67.26	2.90	2.068	.4940
Oklahoma	1	Indians, 9.2 per cent; native parentage, 72.6 per cent; Negro, 13.7 per cent.	8,471	68.16	2.59	2.078	.4850
South Dakota	3	Indians, 87.2 per cent; native parentage, white, 8.1 per cent	247	68.13	2.41	2.180	.4950
German and Scandinavian, 10 per cent plus	20		28,095	68.11	2.62	2.150	.4951
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	68.44	2.54	2.170	.4950
Do	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	68.14	2.63	2.170	.4970
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	68.07	2.68	2.160	.4920
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	68.13	2.66	2.130	.4940
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	67.81	2.58	2.140	.4950
Sparsely settled, not more than 3 per square mile	8		16,165	68.01	2.63	2.130	.4929
California	3	Sparsely settled; foreign born, white, 17.8 per cent	2,108	68.21	2.53	2.116	.4900
Montana	2	Sparsely settled; foreign born, white, 18.1 per cent; Indians, Chinese, and Japanese, 6.1 per cent.	6,531	68.17	2.57	2.150	.4930
Nevada	1	Sparsely settled; foreign born, white, 25.6 per cent; Japanese, 8.4 per cent.	1,441	67.83	2.69	2.143	.4970
New Mexico	2	Foreign born, white, 6.2 per cent; sparsely settled	1,857	67.43	2.85	2.049	.4930
Oregon	2	Foreign born, white, 9.1 per cent; sparsely settled	1,077	68.13	2.52	2.140	.4900
Utah	1	Foreign born, white, 11.7 per cent; sparsely settled	1,224	68.16	2.64	2.114	.4920
Wyoming	1	Foreign born, white, 18.6 per cent; sparsely settled	1,927	67.79	2.63	2.130	.4920
Native white of Scotch origin	15		13,522	68.00	2.64	2.060	.4844
Kentucky	2	Native parentage, white, 76.4 per cent; foreign parentage, 6.9 per cent; foreign born, white, 2.2 per cent; Negro, 14.4 per cent.	11,469	67.95	2.62	2.060	.4840
North Carolina	3	Native parentage, white, 60.9 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.2 per cent; Negro, 38.1 per cent.	2,053	68.24	2.72	2.074	.4850
Scandinavians, 10 per cent	17		51,009	67.96	2.63	2.150	.4952
Michigan	1	Scandinavians, 23.1 per cent; large Finnish population	2,344	67.10	2.61	2.160	.5010
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	68.44	2.54	2.170	.4950
Do	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	68.14	2.63	2.170	.4970
Do	3	Scandinavians, 31.1 per cent; large Finnish population	3,520	67.65	2.66	2.170	.5020
North Dakota	1	Scandinavians, 24 per cent; Canadians, 16 per cent	1,132	67.67	2.56	2.159	.4980
Do	2	Scandinavians, 30.6 per cent; Germans, 8 per cent	3,307	68.03	2.48	2.159	.4970
Do	3	Scandinavians, 13.9 per cent; large Russian population	2,005	67.87	2.61	2.172	.4960
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	68.07	2.68	2.160	.4920
Utah	1	Scandinavians, 10.4 per cent; English, 8.3 per cent	1,224	68.16	2.64	2.114	.4920
Do	2	Scandinavians, 10.5 per cent; English, 13.2 per cent	2,781	67.75	2.56	2.105	.4850
Washington	2	Scandinavians, 13.5 per cent; Germans, 5.7 per cent; some Chinese, Japanese, and Indians.	6,601	67.87	2.70	2.140	.4920
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	68.13	2.66	2.130	.4940
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	67.81	2.58	2.140	.4950
Desert	9		6,121	67.86	2.72	2.090	.4917
Arizona	2	Native parentage, 42.8 per cent; foreign parentage, 23.6 per cent; foreign born, white, 25.9 per cent.	2,823	68.17	2.61	2.096	.4870
Nevada	1	Native parentage, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	67.83	2.69	2.143	.4970
New Mexico	2	Native parentage, 86.9 per cent; foreign parentage, 6.2 per cent; foreign born, white, 5 per cent.	1,857	67.43	2.85	2.049	.4930

TABLE IV.—*Mean height, by groups and component sections, arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits.*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Agricultural, Negroes, 45 per cent plus	4		49,507	67.82	2.68	2.090	0.489
Alabama	2	Negro, 70.6 per cent; native parentage, white, 28.5 per cent	3,327	67.95	2.71	2.098	.4890
Do	4	Negro, 72.8 per cent; native parentage, white, 26.9 per cent	669	68.16	2.61	2.115	.4860
Arkansas	1	Negro, 55.3 per cent; native parentage, white, 41.7 per cent	4,945	68.05	2.68	2.083	.4870
Georgia	2	Negro, 61 per cent; native parentage, white, 37.3 per cent	10,070	67.91	2.66	2.077	.4900
Louisiana	1	Negro, 63 per cent; native parentage, white, 31.8 per cent	4,074	67.73	2.63	2.073	.4910
Mississippi	1	Negro, 71.2 per cent; native parentage, white, 27.3 per cent	5,149	68.15	2.67	2.120	.4880
North Carolina	4	Negro, 47.3 per cent; native parentage, white, 51.9 per cent	4,570	67.79	2.72	2.097	.4890
South Carolina	2	Negro, 59.9 per cent; native parentage, white, 39.5 per cent	3,975	67.72	2.77	2.100	.4900
Do	3	Negro, 62.2 per cent; native parentage, white, 35.7 per cent	3,804	67.33	2.64	2.060	.4910
Tennessee	1	Negro, 44.2 per cent; native parentage, white, 54.5 per cent	2,218	68.07	2.59	2.090	.4830
Texas	5	Negro, 51.1 per cent; native parentage, white, 37.3 per cent	1,346	68.46	2.65	2.110	.4870
Virginia	2	Negro, 49.6 per cent; native parentage, white, 46.6 per cent	5,352	67.46	2.72	2.077	.4900
Mountain	11		17,101	67.72	2.68	2.110	.4921
Arkansas	2	Native parentage, white, 96.9 per cent	1,559	68.64	2.60	2.050	.4840
Massachusetts	1	Native parentage, white, 46.7 per cent; foreign parentage, 30.7 per cent; foreign born, white, 21.7 per cent.	1,373	66.85	2.67	2.070	.4920
Missouri	3	Native parentage, white, 94.4 per cent; foreign parentage, 3.9 per cent; foreign born, white, 1.4 per cent.	1,139	68.63	2.51	2.080	.4850
Montana	1	Native parentage, white, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	67.82	2.65	2.150	.4910
New Hampshire	1	Native parentage, white, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent.	665	67.25	2.54	2.106	.5010
New York	5	Native parentage, white, 60.4 per cent; foreign parentage, 20 per cent; foreign born, white, 16 per cent.	795	67.16	2.69	2.074	.4930
Do	8	Native parentage, white, 62.5 per cent; foreign parentage, 24.7 per cent; foreign born, white, 12 per cent.	2,990	67.06	2.64	2.090	.4970
Washington	3	Native parentage, white, 59.4 per cent; foreign parentage, 20.6 per cent; foreign born, white, 15.6 per cent.	1,539	68.19	2.56	2.142	.4930
Wyoming	1	Native parentage white, 55.3 per cent; foreign parentage, 22.3 per cent; foreign born, white, 18.6 per cent.	1,927	67.79	2.63	2.130	.4920
Agricultural, mixed foreign and native white	2		97,340	67.62	2.66	2.110	.4934
Colorado	4	Native parentage, 69.5 per cent; foreign parentage, 18.2 per cent; foreign born, white, 10.7 per cent.	1,227	68.05	2.70	2.087	.4860
Illinois	8	Native parentage, 54.1 per cent; foreign parentage, 31.5 per cent; foreign born, white, 14.2 per cent.	2,451	67.77	2.63	2.110	.4930
Indiana	2	Native parentage, 76.2 per cent; foreign parentage, 16.8 per cent; foreign born, white, 6.4 per cent.	837	68.12	2.48	2.120	.4910
Iowa	1	Native parentage, 50.7 per cent; foreign parentage, 34.2 per cent; foreign born, white, 14.8 per cent.	12,136	68.09	2.56	2.139	.4920
Kansas	2	Native parentage, 72.9 per cent; foreign parentage, 16.1 per cent; foreign born, white, 7.4 per cent.	8,504	68.18	2.54	2.105	.4880

Michigan	2	Native parentage, 55.6 per cent; foreign parentage, 29.4 per cent; foreign born, white, 14.5 per cent.	12,567	67.63	2.55	2.10	.493
Nebraska	2	Native parentage, 52.9 per cent; foreign parentage, 39.5 per cent; foreign born, white, 14.3 per cent.	3,145	68.21	2.59	2.136	.4890
New Jersey	2	Native parentage, 54.7 per cent; foreign parentage, 21. 7 per cent; foreign born, white, 18.1 per cent.	8,968	66.83	2.70	2.078	.4990
New York	7	Native parentage, 70.8 per cent; foreign parentage, 17.9 per cent; foreign born, white, 10.5 per cent.	6,465	67.45	2.64	2.098	.4960
Ohio	2	Native parentage, 64.7 per cent; foreign parentage, 20 per cent; foreign born, white, 15 per cent.	14,443	67.31	2.74	2.096	.4910
Pennsylvania	6	Native parentage, 64.1 per cent; foreign parentage, 20.5 per cent; foreign born, white, 14.8 per cent.	8,616	67.37	2.90	2.099	.4940
South Dakota	1	Native parentage, 44.7 per cent; foreign parentage, 37.2 per cent; foreign born, white, 16.8 per cent.	3,051	68.07	2.68	2.160	.4920
Vermont	(All)	Native parentage, 44.5 per cent; foreign parentage, 33.7 per cent; foreign born, white, 20.2 per cent.	2,077	67.12	2.52	2.091	.4980
Washington	1	Native parentage, 57.6 per cent; foreign parentage, 22.9 per cent; foreign born, white, 17.7 per cent.	5,176	68.01	2.60	2.139	.4920
Wisconsin	2	Native parentage, 38 per cent; foreign parentage, 43.2 per cent; foreign born, white, 18.2 per cent.	7,685	67.81	2.58	2.140	.4950
Agricultural, native white, North; native white over 73 per cent, North.	1		66,885	67.60	2.63	2.09	.4900
Illinois	3	Native parentage, white, 83.2 per cent; foreign parentage, 10.8 per cent; foreign born, white, 4.4 per cent.	8,928	67.86	2.59	2.094	.4870
Indiana	3	Native parentage, white, 82.5 per cent; foreign parentage, 11 per cent; foreign born, white, 3.9 per cent.	18,743	67.84	2.56	2.083	.4870
Iowa	2	Native parentage, white, 73.1 per cent; foreign parentage, 17.7 per cent; foreign born, white, 7.6 per cent.	7,401	67.96	2.61	2.106	.4880
Ohio	3	Native parentage, white, 78.7 per cent; foreign parentage, 13.7 per cent; foreign born, white, 4.8 per cent.	17,606	67.75	2.59	2.085	.4890
Pennsylvania	2	Native parentage, white, 79.5 per cent; foreign parentgage, 9.8 per cent; foreign born, white, 7.9 per cent.	14,218	66.73	2.62	2.095	.4970
Mining	7		35,730	67.49	2.72	2.110	.4930
Alabama	1	Native parentage, white, 71.5 per cent; negro, 25.6 per cent.	8,841	67.97	2.67	2.071	.4840
California	2	Native parentage, white, 47.2 per cent; foreign parentage, 27.3 per cent; foreign born, white, 19.9 per cent.	943	67.69	2.64	2.154	.4990
Colorado	1	Native parentage, white, 73.9 per cent; foreign parentage, 15.7 per cent; foreign born, white, 8.6 per cent.	1,056	68.06	2.79	2.081	.4890
Do	3	Native parentage, white, 54.3 per cent; foreign parentage, 27.1 per cent; foreign born, white, 17.6 per cent.	381	68.12	2.66	2.086	.4870
Do	6	Native parentage, white, 52.4 per cent; foreign parentage, 22.9 per cent; foreign born, white, 22.4 per cent.	1,223	67.65	2.71	2.060	.4840
Idaho	1	Native parentage, white, 62.5 per cent; foreign parentage, 23.1 per cent; foreign born, white, 12.4 per cent.	4,031	68.10	2.57	2.133	.4950
Montana	1	Native parentage, white, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	67.82	2.65	2.150	.4910
Nevada	1	Native parentage, white, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	67.83	2.69	2.143	.4970
Pennsylvania	3	Native parentage, white, 42.5 per cent; foreign parentage, 32.5 per cent; foreign born, white, 23.8 per cent.	7,305	66.55	2.57	2.105	.5000
Do	4	Native parentage, white, 61.3 per cent; foreign parentage, 18.1 per cent; foreign born, white, 18.4 per cent.	4,827	66.80	2.69	2.109	.4960
Utah	3	Native parentage, white, 43.5 per cent; foreign parentage, 36.8 per cent; foreign born, white, 18.6 per cent.	563	67.65	2.78	2.127	.4940

TABLE IV.—*Mean height, by groups and component sections, arranged in order of standing, with proportional weight and chest circumference (expiration) for each inch of height; also standard deviation for each height; first million draft recruits*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Finn, 10 per cent	18		5,864	67.43	2.65	2.160	0.5016
Michigan	1	Large Finnish population; Scandinavians, 23.1 per cent	2,344	67.10	2.61	2.160	.5010
Minnesota	3	Large Finnish population; Scandinavians, 31.1 per cent	3,520	67.65	2.66	2.170	.5020
German and Austrian, 20 per cent plus	21		38,962	67.41	2.69	2.130	.4955
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	67.43	2.67	2.123	.4950
Do	4	Germans, 17.4 per cent; Austrians, 2.8 per cent	4,236	67.59	2.64	2.115	.4940
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	67.22	2.64	2.113	.4970
Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent; Scandinavians, 16.8 per cent.	7,601	68.14	2.63	2.170	.4970
Ohio	1	Germans, 18.9 per cent; Austrians, 8.5 per cent	17,208	67.06	2.67	2.111	.4990
Maritime	10		6,161	67.31	2.70	2.090	.4903
Maine	2	Native parentage, white, 86.1 per cent; foreign parentage, 7.8 per cent; foreign born, white, 5.8 per cent.	828	67.59	2.59	2.091	.4970
Maryland	2	Native parentage, white, 65.6 per cent; foreign parentage, 1.7 per cent; foreign born, white, 1.1 per cent; Negro, 31.6 per cent.	1,068	67.37	2.69	2.080	.4900
Do	4	Native parentage, white, 50 per cent; foreign parentage, 1.3 per cent; foreign born, white, 0.8 per cent; Negro, 47.8 per cent.	(a)	(a)	(a)	(a)	
Massachusetts	3	Native parentage, white, 51.6 per cent; foreign parentage, 25.2 per cent; foreign born, white, 20.9 per cent; Negro, 2 per cent.	1,127	66.90	2.70	2.070	.4910
North Carolina	5	Native parentage, white, 57.1 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.7 per cent; Negro, 41.2 per cent.	254	67.69	2.61	2.087	.4910
Virginia	1	Native parentage, white, 49.5 per cent; foreign parentage, 3.6 per cent; foreign born, white, 2.8 per cent; Negro, 44 per cent.	2,886	67.34	2.73	2.091	.4870
German and Austrian, 15 per cent plus	22		126,994	67.27	2.72	2.120	.4954
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	67.43	2.67	2.123	.4950
Do	4	Germans, 17.4 per cent; Austrians, 2.8 per cent	4,236	67.59	2.64	2.115	.4940
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	67.22	2.64	2.113	.4970
Iowa	1	Germans, 15.9 per cent; Austrians, 1.9 per cent	12,136	68.09	2.56	2.139	.4920
Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent	7,601	68.14	2.63	2.170	.4970
Nebraska	1	Germans, 12.2 per cent; Austrians, 3.9 per cent	7,629	68.02	2.69	2.120	.4880
Do	2	Germans, 13.5 per cent; Austrians, 5.5 per cent	3,145	68.21	2.59	2.136	.4890
New Jersey	1	Germans, 14 per cent; Austrians, 4.4 per cent	17,795	66.72	2.74	2.078	.4970
Ohio	1	Germans, 18.9 per cent; Austrians 8.5 per cent	17,208	67.06	2.67	2.111	.4950
Pennsylvania	3	Germans, 5.6 per cent; Austrians, 10 per cent	7,305	66.55	2.57	2.105	.5000
Do	5	Germans, 4.5 per cent; Austrians, 11.4 per cent	8,892	66.66	2.69	2.116	.4970
Do	7	Germans, 10.7 per cent; Austrians, 6.5 per cent	17,243	66.67	2.65	2.093	.4950
Wisconsin	1	Germans, 13.6 per cent; Austrians, 3.2 per cent	3,297	68.13	2.66	2.130	.4940
Do	2	Germans, 26.3 per cent; Austrians, 1.8 per cent	7,685	67.81	2.58	2.14	.4950
Do	4	Germans, 27.1 per cent; Austrians, 4.3 per cent	2,895	67.39	2.57	2.14	.5000

Russian, 10 per cent plus	16		12,076	67.11	2.68	2.120	.4976
Colorado	2	Russians, 8.3 per cent; native parentage, 64.3 per cent	1,105	67.83	2.67	2.094	.4900
Kansas	1	Russians, 13.1 per cent; native parentage, 60.3 per cent	1,067	68.30	2.57	2.122	.4860
North Dakota	3	Russians, 26.7 per cent; native parentage, 27.3 per cent	2,005	67.87	2.61	2.172	.4960
Pennsylvania	3	Russians, 11 per cent; native parentage, 42.5 per cent	7,305	66.55	2.57	2.105	.5000
South Dakota	2	Russians, 25.6 per cent; native parentage, 33.5 per cent	594	67.92	2.53	2.170	.4950
Commuters	6		29,032	66.86	2.75	2.09	.4970
Illinois	1	Native parentage, white, 34.6 per cent; foreign parentage, 38.2 per cent; foreign born, white, 23.9 per cent.	6,303	67.43	2.67	2.123	.4950
New Jersey	1	Native parentage, white, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent.	17,795	66.72	2.74	2.078	.4970
New York	1	Native parentage, white, 44.7 per cent; foreign parentage, 27.6 per cent; foreign born, white, 24.6 per cent.	4,934	66.65	2.76	2.091	.4970
Eastern manufacturing	5		81,718	66.77	2.70	2.09	.4970
Connecticut	2	Native parentage, 30.6 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32 per cent; Irish, 15.2 per cent.	8,708	66.73	2.73	2.096	.4990
Massachusetts	2	Native parentage, 33.3 per cent; foreign parentage, 34.7 per cent; foreign born, white, 34.7; Irish, 14.9 per cent.	18,447	66.67	2.67	2.07	.4970
New Hampshire	2	Native parentage, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 23.7 per cent; French-Canadians, 17.3 per cent.	1,575	66.86	2.61	2.081	.4930
New Jersey	1	Native parentage, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent; Germans, 14 per cent.	17,795	66.72	2.74	2.078	.4970
New York	3	Native parentage, 59.4 per cent; foreign parentage, 24.2 per cent; foreign born, white, 15.7 per cent; Irsh 8.2 per cent.	5,150	66.87	2.66	2.092	.4980
Ohio	1	Native parentage, 33.1 per cent; foreign parentage, 37.1 per cent; foreign born, white, 28.4 per cent; Germans, 18.9 per cent.	17,208	67.06	2.67	2.111	.4950
Pennsylvania	5	Native parentage, 56.8 per cent; foreign parentage, 19.7 per cent; foreign born, white, 22.2 per cent; Austrians, 11.4 per cent.	8,892	66.66	2.69	2.116	.4970
Rhode Island	1	Native parentage, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; Irish, 13.5 per cent.	3,928	66.40	2.61	2.06	.4940
French-Canadian, 10 per cent	19		25,862	66.67	2.65	2.07	.4966
Maine	3	Native parentage, 64.7 per cent; foreign parentage, 18.2 per cent; foreign born, white, 16.9 per cent; French-Canadians, 12.5 per cent.	1,247	67.07	2.58	2.08	.4950
Massachusetts	2	Native parentage, 33.3 per cent; foreign parentage, 34.7 per cent; foreign born, white, 31.2 per cent; French-Canadians, 9.7 per cent.	18,447	66.67	2.67	2.07	.4970
New Hampshire	1	Native parentage, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent; French-Canadians, 12.9 per cent.	665	67.25	2.54	2.106	.5010
Do.	2	Native parentage, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 23.7 per cent; French-Canadians, 17.3 per cent.	1,575	66.86	2.61	2.081	.4930
Rhode Island	1	Native parentage, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; French-Canadians, 11.4 per cent.	3,928	66.40	2.61	2.06	.4940

([a]) Not tabulated.

TABLE V.—*Mean weight, by groups and component sections, arranged in order of standing, with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits.*

Group and section.	Group and section No.	Description.	Number of men measured.	Mean weight.	Standard deviation (weight).	Mean weight. / Mean height.	Mean chest. / Mean weight.
				Pounds.	*Pounds.*	*Pounds.*	*Inch.*
Average for the United States. Table I			868,445	141.54	17.42	2.097	0.2340
Germans and Scandinavians, 10 per cent plus	20		28,095	146.66	17.00	2.150	.2300
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	148.28	16.61	2.170	.2280
Do	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	147.64	17.31	2.170	.2290
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	146.80	18.54	2.160	.2280
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	145.13	16.93	2.130	.2320
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	144.94	17.13	2.140	.2320
Scandinavians, 10 per cent	17		51,009	146.13	16.99	2.150	.2300
Michigan	1	Scandinavians, 23.1 per cent; large Finnish population	2,344	144.74	16.83	2.160	.2320
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	148.28	16.61	2.170	.2280
Do	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	147.64	17.31	2.170	.2290
Do	3	Scandinavians, 31.1 per cent; large Finnish population	3,520	146.44	16.84	2.170	.2320
North Dakota	1	Scandinavians, 24 per cent; Canadians, 16 per cent	1,132	146.10	16.20	2.159	.2300
Do	2	Scandinavians, 30.6 per cent; Germans, 8 per cent	3,307	146.93	16.23	2.159	.2300
Do	3	Scandinavians, 13.9 per cent; large Russian population	3,005	147.48	16.83	2.172	.2280
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	146.80	18.54	2.160	.2280
Utah	1	Scandinavians, 10.4 per cent; English, 8.3 per cent	1,224	144.06	15.49	2.114	.2330
Do	2	Scandinavians, 10.5 per cent; English, 13.2 per cent	2,781	142.56	16.83	2.105	.2300
Washington	2	Scandinavians, 13.5 per cent; Germans, 5.7 per cent; some Chinese, Japanese, and Indians.	6,601	145.25	17.28	2.140	.2300
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	145.13	16.93	2.130	.2320
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	144.94	17.13	2.140	.2320
Finns, 10 per cent	18		5,864	145.76	16.86	2.160	.2320
Michigan	1	Scandinavians, 23.1 per cent; large Finnish population	2,344	144.74	16.83	2.160	.2320
Minnesota	3	Scandinavians, 31.1 per cent; large Finnish population	3,520	146.44	16.84	2.170	.2320
Sparsely settled, not more than 3 per square mile	8		16,165	144.84	16.93	2.130	.2310
California	3	Sparsely settled; foreign born, white, 17.8 per cent	2,108	144.39	17.53	2.116	.2310
Montana	2	Sparsely settled; foreign born, white, 18.1 per cent; Indians, Chinese, and Japanese, 6.1 per cent.	6,531	146.80	16.65	2.150	.2290
Nevada	1	Sparsely settled; foreign born, white, 25.6 per cent; Japanese, 8.4 per cent	1,441	145.35	17.11	2,143	.2320
New Mexico	2	Sparsely settled; foreign born, white, 6.2 per cent	1,857	138.20	16.42	2.049	.2400
Oregon	2	Sparsely settled; foreign born, white, 9.1 per cent	1,077	145.82	16.64	2.140	.2290
Utah	1	Sparsely settled, foreign born, white, 11.7 per cent	1,224	144.06	15.49	2.114	.2330
Wyoming	1	Sparsely settled; foreign born, white, 18.6 per cent	1,927	144.61	16.89	2.130	.2310
Germans and Austrians, 20 per cent plus	21		38,962	143.27	18.05	2.130	.2330
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	143.19	17.88	2.123	.2330
Do	4	Germans, 17.4 per cent; Anstrians, 2.8 per cent	4,236	143.02	17.82	2.115	.2330
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	142.07	18.15	2.113	.2350

Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent; Scandinavians, 16.8 per cent.	7,601	147.64	17.31	2.170	.2290
Ohio	1	Germans, 18.9 per cent; Austrians, 8.5 per cent	17,208	142.62	18.15	2.111	.2340
Mountain	11		17,103	142.97	16.76	2.110	.2330
Arkansas	2	Native white, native parentage, 96.9 per cent	1,559	140.78	14.90	2.050	.2360
Massachusetts	1	Native parentage, 46.7 per cent; foreign parentage, 30.7 per cent; foreign born, white, 21.7 per cent.	1,373	138.52	17.13	2.070	.2370
Missouri	3	Native parentage, 94.4 per cent; foreign parentage, 3.9 per cent; foreign born, white, 1.4 per cent.	1,139	142.49	15.68	2.080	.2340
Montana	1	Native parentage, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	145.70	16.65	2.150	.2290
New Hampshire	1	Native parentage, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent.	665	141.67	17.96	2.016	.2380
New York	5	Native parentage, 60.4 per cent; foreign parentage, 20 per cent; foreign born, white, 16 per cent.	795	139.30	16.74	2.074	.2380
Do	8	Native parentage, 62.5 per cent; foreign parentage, 24.7 per cent; foreign born, white, 12 per cent.	2,990	140.21	16.71	2.090	.2370
Washington	3	Native parentage, 59.4 per cent; foreign parentage, 20.6 per cent; foreign born, white, 15.6 per cent.	1,539	146.07	16.29	2.142	.2300
Wyoming	1	Native parentage, 55.3 per cent; foreign parentage, 22.3 per cent; foreign born, white, 18.6 per cent.	1,927	144.61	16.89	2.130	.2310
Agricultural, mixed foreign and native white	2		97,340	142.79	17.28	2.11	.2338
Colorado	4	Native parentage, 69.5 per cent; foreign parentage, 18.2 per cent; foreign born, white, 10.7 per cent.	1,227	142.05	16.20	2.087	.2330
Illinois	8	Native parentage, 54.1 per cent; foreign parentage, 31.5 per cent; foreign born, white, 14.2 per cent.	2,451	143.01	17.17	2.110	.2330
Indiana	2	Native parentage, 76.2 per cent; foreign parentage, 16.8 per cent; foreign born, white, 6.4 per cent.	837	144.45	17.24	2.120	.2310
Iowa	1	Native parentage, 50.7 per cent; foreign parentage, 34.2 per cent; foreign born, white, 14.8 per cent.	12,136	145.67	17.10	2.139	.2300
Kansas	2	Native parentage, 72.9 per cent; foreign parentage, 16.1 per cent: foreign born, white, 7.4 per cent.	8,504	143.56	17.21	2.105	.2310
Michigan	2	Native parentage, 55.6 per cent; foreign parentage, 29.4 per cent; foreign born, white, 14.5 per cent.	12,567	142.01	16.85	2.100	.2350
Nebraska	2	Native parentage, 52.9 per cent; foreign parentage, 39.5 per cent; foreign born, white, 14.3 per cent.	3,145	145.70	17.73	2.136	.2290
New Jersey	2	Native parentage, 54.7 per cent; foreign parentage, 21.7 per cent; foreign born, white, 18.1 per cent.	8,968	138.92	17.34	2.078	.2400
New York	7	Native parentage, 70.8 per cent; foreign parentage, 17.9 per cent; foreign born, white, 10.5 per cent.	6,465	141.53	17.62	2.098	.2360
Ohio	2	Native parentage, 64.7 per cent; foreign parentage, 20 per cent; foreign born, white, 15 per cent.	14,443	141.10	17.31	2.096	.2340
Pennsylvania	6	Native parentage, 64.1 per cent; foreign parentage, 20.5 per cent: foreign born, white, 14.8 per cent.	8,616	141.40	16.93	2.099	.2350
South Dakota	1	Native parentage, 44.7 per cent; foreign parentage, 37.2 per cent; foreign born, white, 16.8 per cent.	3,051	146.80	18.54	2.160	.2280
Vermont	All.	Native parentage, 44.5 per cent; foreign parantege, 33.7 per cent; foreign born, white, 20.2 per cent.	2,077	140.33	16.43	2.091	.2380
Washington	1	Native parentage, 57.6 per cent; foreign parentage, 22.9 per cent; foreign born, white, 17.7 per cent.	5,176	145.50	17.10	2.139	.2300
Wisconsin	2	Native parentage, 38 per cent; foreign parentage, 43.2 per cent; foreign born, white, 18.2 per cent.	7,685	144.94	17.13	2.140	.2320

TABLE V.—*Mean weight, by groups and component sections, arranged in order of standing, with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Germans and Austrians, 15 per cent plus	22		126,994	142.31	17.73	2.120	0.2340
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	143.19	17.88	2.123	.2330
Do	4	Germans, 17.4 per cent; Austrians, 2.8 per cent	4,236	143.02	17.82	2.115	.2330
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	142.07	18.15	2.113	.2350
Iowa	1	Germans, 15.9 per cent; Austrians, 1.9 per cent	12,136	145.67	17.10	2.139	.2300
Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent	7,601	147.64	17.31	2.170	.2290
Nebraska	1	Germans, 12.2 per cent; Austrians, 3.9 per cent	7,629	144.37	17.48	2.120	.2300
Do	2	Germans, 13.5 per cent; Austrians, 5.5 per cent	3,145	145.70	17.73	2.136	.2290
New Jersey	1	Germans, 14 per cent; Austrians, 4.4 per cent	17,795	138.69	17.59	2.078	.2390
Ohio	1	Germans, 18.9 per cent; Austrians, 8.5 per cent	17,208	141.62	18.15	2.111	.2340
Pennsylvania	3	Germans, 5.6 per cent; Austrians, 10 per cent	7,205	140.10	17.17	2.105	.2370
Do	5	Germans, 4.5 per cent; Austrians, 11.4 per cent	8,892	141.06	17.02	2.116	.2350
Do	7	Germans, 10.7 per cent; Austrians, 6.5 per cent	17,243	139.55	17.56	2.093	.2360
Wisconsin	1	Germans, 13.6 per cent; Austrians, 3.2 per cent	3,297	145.13	16.93	2.130	.2320
Do	2	Germans, 26.3 per cent; Austrians, 1.8 per cent	7,685	144.94	17.13	2.140	.2320
Do	4	Germans, 27.1 per cent; Austrians, 4.3 per cent	2,895	144.35	17.48	2.140	.2340
Russians, 10 per cent plus	16		12,076	142.30	17.21	2.120	.2340
Colorado	2	Russians, 8.3 per cent; native parentage, 64.3 per cent	1,105	142.04	15.50	2.094	.2340
Kansas	1	Russians, 13.1 per cent; native parentage, 60.3 per cent	1,067	144.95	17.44	2.122	.2290
North Dakota	3	Russians, 26.7 per cent; native parentage, 27.3 per cent	2,005	147.48	16.83	2.172	.2280
Pennsylvania	3	Russians, 11 per cent; native parentage, 42.5 per cent	7,305	140.10	17.17	2.105	.2370
South Dakota	2	Russians, 25.6 per cent; native parentage, 33.5 per cent	594	147.22	16.15	2.170	.2280
Mexican, sparsely settled	14		10,779	142.14	17.36	2.090	.2335
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	143.29	16.93	2.106	.2320
Do	2	Indians, Chinese, and Japanese, 6.6 per cent; Mexicans, 7.8 per cent	2,823	142.95	17.34	2.096	.2320
New Mexico	3	Mexicans, 14.3 per cent; native parentage, 61.5 per cent	540	139.01	17.36	2.048	.2340
Texas	1	Mexicans, 17.1 per cent; native parentage, 44.1 per cent	6,676	141.85	17.40	2.080	.2340
Mining	7		35,730	142.25	16.86	2.110	.2330
Alabama	1	Native parentage, white, 71.5 per cent; Negro, 25.6 per cent	8,841	140.81	16.41	2.071	.2330
California	2	Native parentage, white, 47.2 per cent; foreign parentage, 27.3 per cent; foreign born, white, 19.9 per cent.	943	145.84	16.85	2.154	.2310
Colorado	1	Native parentage, 73.9 per cent; foreign parentage, 15.7 per cent; foreign born, white, 8.6 per cent.	1,056	141.64	15.73	2.081	.2350
Do	3	Native parentage, 54.3 per cent; foreign parentage, 27.1 per cent; foreign born, white, 17.6 per cent.	381	142.13	15.50	2.086	.2330
Do	6	Native parentage, 52.4 per cent; foreign parentage, 22.9 per cent; foreign born, white, 22.4 per cent.	1,223	139.40	16.10	2.060	.2350
Idaho	1	Native parentage, 62.5 per cent; foreign parentage, 23.1 per cent; foreign born, white, 12.4 per cent.	4,031	145.31	16.29	2.133	.2320
Montana	1	Native parentage, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	145.70	16.65	2.150	.2290
Nevada	1	Native parentage, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	145.35	17.11	2.143	.2320

Pennsylvania	3	Native parentage, 42.5 per cent; foreign parentage, 32.5 per cent; foreign born, white, 23.8 per cent.	7,305	140.10	17.17	2.105	.2370
Do.	4	Native parentage, 61.3 per cent; foreign parentage, 18.1 per cent; foreign born, white, 18.4 per cent.	4,827	140.94	17.22	2.109	.2350
Utah	3	Native parentage, 43.5 per cent; foreign parentage, 36.8 per cent; foreign born, white, 18.6 per cent.	563	143.88	16.54	2.127	.2320
Desert	9		6,121	142.08	17.23	2.090	.2340
Arizona	2	Native parentage, 42.8 per cent; foreign parentage, 23.6 per cent; foreign born, white, 25.9 per cent.	2,823	142.95	17.34	2.096	.2320
Nevada	1	Native parentage, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	145.35	17.11	2.143	.2320
New Mexico	2	Native parentage, 86.9 per cent; foreign parentage, 6.2 per cent; foreign born, white, 5 per cent.	1,857	138.20	16.42	2.049	.2400
Indian, sparsely settled	13		10,038	141.89	16.91	2.080	.2330
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	143.29	16.93	2.106	.2320
New Mexico	1	Indians, 29.1 per cent; native parentage, white, 61.1 per cent	293	139.12	18.49	2.068	.2390
Oklahoma	1	Indians, 9.2 per cent; native parentage, white, 72.6 per cent; Negro, 13.7 per cent.	8,471	141.63	16.80	2.078	.2330
South Dakota	3	Indians, 87.2 per cent; native parentage, white, 8.1 per cent	247	148.30	16.77	2.180	.2280
Agricultural, Negroes, 45 per cent plus	4		49,503	141.61	16.64	2.090	.2344
Alabama	2	Negro, 70.6 per cent; native parentage, white, 28.5 per cent	3,327	142.57	16.77	2.098	.2330
Do.	4	Negro, 72.8 per cent; native parentage, white, 26.9 per cent	669	144.21	14.81	2.115	.2290
Arkansas	1	Negro, 55.3 per cent; native parentage, white, 41.7 per cent	4,945	141.81	16.39	2.083	.2320
Georgia	2	Negro, 61 per cent; native parentage, white, 37.3 per cent	10,070	141.09	16.83	2.077	.2360
Louisiana	1	Negro, 63 per cent; native parentage, white, 31.8 per cent	4,074	140.47	16.55	2.073	.2360
Mississippi	1	Negro, 71.2 per cent; native parentage, white, 27.3 per cent	5,149	144.16	16.45	2.120	.2310
North Carolina	4	Negro, 47.3 per cent; native parentage, white, 51.9 per cent	4,570	142.18	17.01	2.097	.2330
South Carolina	2	Negro, 59.9 per cent; native parentage, white, 39.5 per cent	3,975	142.04	16.29	2.100	.2340
Do.	3	Negro, 62.2 per cent; native parentage, white, 35.7 per cent	3,804	138.90	15.70	2.060	.2380
Tennessee	1	Negro, 44.2 per cent; native parentage, white, 54.5 per cent	2,218	141.97	17.11	2.090	.2320
Texas	5	Negro, 51.1 per cent; native parentage, white, 37.3 per cent	1,346	144.68	13.23	2.110	.2310
Virginia	2	Negro, 49.6 per cent; native parentage, white, 46.6 per cent	5,352	140.10	16.43	2.077	.2360
Agricultural, native white, South	3		117,548	141.44	16.83	2.070	.2340
Alabama	3	Native parentage, white, 67.6 per cent; Negro, 31 per cent	2,670	140.71	15.84	2.062	.2350
Arkansas	2	Native parentage, white, 96.9 per cent; Negro, 0.7 per cent	1,559	140.78	14.90	2.050	.2360
Do.	3	Native parentage, white, 83.9 per cent; Negro, 12 per cent	3,607	140.77	16.13	2.063	.2350
Kentucky	2	Native parentage, white, 76.4 per cent; Negro, 14.4 per cent	11,469	140.02	16.76	2.060	.2340
Louisiana	3	Native parentage, white, 61 per cent; Negro, 34.4 per cent	5,235	140.13	16.22	2.064	.2360
Maryland	3	Native parentage, white, 73.4 per cent; Negro, 14.8 per cent	2,683	140.76	16.48	2.090	.2370
Mississippi	2	Native parentage, white, 64.5 per cent; Negro, 33.4 per cent	3,394	141.81	16.43	2.070	.2310
Missouri	1	Native parentage, white, 81.4 per cent; Negro, 3.2 per cent	13,588	141.67	17.06	2.080	.2340
Do.	3	Native parentage, white, 94.4 per cent; Negro, 0.3 per cent	1,139	142.49	15.68	2.080	.2340
North Carolina	2	Native parentage, white, 60.9 per cent; Negro, 38.1 per cent	4,309	141.07	17.14	2.066	.2350
Do.	3	Native parentage, white, 51.9 per cent; Negro, 47.3 per cent	2,053	141.55	16.75	2.074	.2340
Do.	6	Native parentage, white, 57.1 per cent; Negro, 41.2 per cent	744	140.63	16.35	2.076	.2350
Oklahoma	1	Native parentage, white, 72.6 per cent; Negro, 13.7 per cent	8,471	141.63	16.80	2.078	.2330
Do.	2	Native parentage, white, 82.7 per cent; Negro, 5 per cent	10,958	142.92	16.97	2.090	.2320
Tennessee	2	Native parentage, white, 74.1 per cent; Negro, 22 per cent	6,308	139.50	16.33	2.040	.2370
Texas	2	Native parentage, white, 77.6 per cent; Negro, 15.9 per cent	22,372	142.31	17.29	2.080	.2310
Do.	4	Native parentage, white, 52.3 per cent; Negro, 26.8 per cent	2,722	142.24	17.05	2.090	.2330
Virginia	3	Native parentage, white, 64.8 per cent; Negro, 33.2 per cent	3,866	140.77	16.28	2.066	.2370
West Virginia	2	Native parentage, white, 86.8 per cent; Negro, 4.5 per cent	10,860	141.62	16.96	2.087	.2350

TABLE V.—*Mean weight, by groups and component sections, arranged in order of standing, with proportional weight for each inch of height and chest circumference (expiration) for each pound of weight; also standard deviation for each weight; first million draft recruits*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Agricultural, native white, North, native white over 73 per cent, North.	1	....	66, 885	141.32	17.45	2.090	0.2340
Illinois	3	Native parentage, 83.2 per cent; foreign parentage, 10.8 per cent; foreign born, white, 4.4 per cent.	8, 928	142.13	17.23	2.094	.2320
Indiana	3	Native parentage, 82.5 per cent; foreign parentage, 11 per cent; foreign born, white, 3.9 per cent.	18, 743	141.37	17.80	2.083	.2330
Iowa	2	Native parentage, 73.1 per cent; foreign parentage, 17.7 per cent; foreign born, white, 7.6 per cent.	7, 401	143.15	17.27	2.106	.2310
Ohio	3	Native parentage, 78.7 per cent; foreign parentage, 13.7 per cent; foreign born, white, 4.8 per cent.	17, 606	141.27	17.46	2.085	.2340
Pennsylvania	2	Native parentage, 79.5 per cent; foreign parentage, 9.8 per cent; foreign born, white, 7.9 per cent.	14, 218	139.83	17.06	2.095	.2370
Maritime	10	....	6, 161	140.38	16.86	2.090	.2350
Maine	2	Native parentage, white, 86.1 per cent; foreign parentage, 7.8 per cent; foreign born, white, 5.8 per cent.	828	141.37	16.10	2.091	.2370
Maryland	2	Native parentage, white, 65.6 per cent; foreign parentage, 1.7 per cent; foreign born, white, 1.1 per cent; Negro, 31.6 per cent.	1, 068	140.01	16.56	2.080	.2360
Do	4	Native parentage, white, 50 per cent; foreign parentage, 1.3 per cent; foreign born, white, 0.8 per cent; Negro, 47.8 per cent.	(a)	(a)	(a)	(a)	(a)
Massachusetts	3	Native parentage, white, 51.6 per cent; foreign parentage, 25.2 per cent; foreign born, white, 20.9 per cent; Negro, 2 per cent.	1, 127	138.70	16.76	2.070	.2370
North Carolina	5	Native parentage, white, 57.1 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.7 per cent; Negro, 41.2 per cent.	254	141.27	15.86	2.087	.2350
Virginia	1	Native parentage, white, 49.5 per cent; foreign parentage, 3.6 per cent; foreign born, white, 2.8 per cent; Negro, 44 per cent.	2, 886	140.82	17.25	2.091	.2330
Mountain whites	12	....	21, 254	140.24	16.05	2.059	.2367
Kentucky	1	Native parentage, white, 96.4 per cent; foreign parentage, 0.7 per cent; foreign born, white, 0.3 per cent; Negro, 2.5 per cent.	4, 033	139.92	15.26	2.051	.2370
North Carolina	1	Native parentage, white, 90.8 per cent; foreign parentage, 0.5 per cent; foreign born, white, 0.2 per cent; Negro, 8.3 per cent.	2, 738	141.22	15.96	2.056	.2380
South Carolina	1	Native parentage, white, 67.8 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.3 per cent; Negro, 31.4 per cent.	1, 564	140.42	16.72	2.060	.2350
Tennessee	3	Native parentage, white, 89.5 per cent; foreign parentage, 1.1 per cent; foreign born, white, 0.6 per cent; Negro, 9.3 per cent.	5, 900	140.02	16.43	2.050	.2350
Virginia	4	Native parentage, white, 88 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.8 per cent; Negro, 10.2 per cent.	5, 512	140.02	15.94	2.055	.2380
West Virginia	1	Native parentage, white, 86.8 per cent; foreign parentage, 3.7 per cent; foreign born, white, 4.8 per cent; Negro, 4.5 per cent.	1, 507	140.85	16.45	2.072	.2360

Native white of Scotch origin	15		13,522	140.26	16.77	2.060	.2350
Kentucky	2	Native parentage, white, 76.4 per cent; foreign parentage, 6.9 per cent; foreign born, white, 2.2 per cent; Negro, 14.4 per cent.	11,469	140.02	16.76	2.060	.2340
North Carolina	3	Native parentage, white, 60.9 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.2 per cent; Negro, 38.1 per cent.	2,053	141.55	16.75	2.074	.2340
Commuters	6		29,032	139.79	17.66	2.090	.2380
Illinois	1	Native parentage, white, 34.6 per cent; foreign parentage, 38.2 per cent; foreign born, white, 23.9 per cent.	6,303	143.19	17.88	2.123	.2330
New Jersey	1	Native parentage, white, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent.	17,795	138.69	17.59	2.078	.2390
New York	1	Native parentage, white, 44.7 per cent; foreign parentage, 27.6 per cent; foreign born, white, 24.6 per cent.	4,934	139.39	17.09	2.091	.2380
Eastern manufacturing	5		81,718	139.48	17.71	2.090	.2380
Connecticut	2	Native parentage, 30.6 per cent; foreign parentage, 35.9 per cent; foreign, born, white, 32 per cent; Irish, 15.2 per cent.	8,708	139.92	18.20	2.096	.2380
Massachusetts	2	Native parentage, 33.3 per cent; foreign parentage, 34.7 per cent; foreign born, white, 31.2 per cent; Irish, 14.9 per cent.	18,447	137.82	17.25	2.070	.2410
New Hampshire	2	Native parentage, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 23.7 per cent; French-Canadians, 17.3 per cent.	1,575	139.13	17.55	2.081	.2370
New Jersey	1	Native parentage, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent; Germans, 14 per cent.	17,795	138.69	17.59	2.078	.2390
New York	3	Native parentage, 59.4 per cent; foreign parentage, 24.2 per cent; foreign born, white, 15.7 per cent; Irish, 8.2 per cent.	5,150	139.94	17.50	2.092	.2380
Ohio	1	Native parentage, 33.1 per cent; foreign parentage, 37.1 per cent; foreign born, white, 28.4 per cent; Germans, 18.9 per cent.	17,208	141.62	18.15	2.111	.2340
Pennsylvania	5	Native parentage, 56.8 per cent; foreign parentage, 19.7 per cent; foreign born, white, 22.2 per cent; Austrians, 11.4 per cent.	8,892	141.06	17.02	2.116	.2350
Rhode Island	1	Native parentage, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; Irish, 13.5 per cent.	3,928	136.44	17.69	2.060	.2410
French-Canadians, 10 per cent	19		25,862	137.88	17.38	2.070	.2390
Maine	3	Native parentage, white, 64.7 per cent; foreign parentage, 18.2 per cent; foreign born, white, 16.9 per cent; French-Canadians, 12.5 per cent.	1,247	139.71	17.21	2.080	.2380
Massachusetts	2	Native parentage, white, 33.3 per cent; foreign parentage, 34.7 per cent; foreign born, white, 31.2 per cent; French-Canadians, 9.7 per cent.	18,447	137.82	17.25	2.070	.2410
New Hampshire	1	Native parentage, white, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent; French-Canadians, 12.9 per cent.	665	141.67	17.96	2.016	.2380
Do	2	Native parentage, white, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 33.7 per cent; Freuch-Canadians, 17.3 per cent.	1,575	139.13	17.55	2.081	.2370
Rhode Island	1	Native parentage, white, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; French-Canadians, 11.4 per cent.	3,928	136.44	17.69	2.060	.2410

[a] Not tabulated.

TABLE VI.—*Mean chest girth by groups and component sections, arranged on order of standing, with proportional chest circumference (expiration) for each inch of height and each pound of weight; also standard deviation for each chest measurement; first million draft recruits.*

Group and section.	Group and section No.	Description.	Number of men measured.	Mean chest girth.	Standard deviation (chest).	Mean chest. / Mean height.	Mean chest. / Mean weight.
				Inches.	*Inches.*	*Inch.*	*Pound.*
Average for the United States (Table II)			873,159	33.22	2.01	0.4920	0.2340
Finn, 10 per cent	18		5,855	33.82	1.99	.5016	.2320
Michigan	1	Large Finnish population; Scandinavians, 23.1 per cent	2,344	33.63	1.95	.5010	.2320
Minnesota	3	Large Finnish population; Scandinavians, 31.1 per cent	3,520	33.95	1.98	.5020	.2320
German and Scandinavian, 10 per cent plus	20		28,056	33.72	1.95	.4950	.2300
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	33.86	1.86	.4950	.2280
Minnesota	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	33.86	1.93	.4970	.2290
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	33.51	1.95	.4920	.2280
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	33.68	1.89	.4940	.2320
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	33.56	1.97	.4950	.2320
Scandinavian, 10 per cent	17		50,953	33.65	1.95	.4950	.2300
Michigan	1	Scandinavians, 23.1 per cent; large Finnish population	2,344	36.63	1.96	.5010	.2320
Minnesota	1	Scandinavians, 37.4 per cent; Germans, 10.3 per cent	6,461	33.86	1.86	.4950	.2280
Do	2	Scandinavians, 16.8 per cent; Germans, 22.3 per cent	7,601	33.86	1.93	.4970	.2290
Do	3	Scandinavians, 31.1 per cent; large Finnish population	3,520	33.95	1.98	.5020	.2320
North Dakota	1	Scandinavians, 24 per cent; Canadians, 16 per cent	1,132	33.72	1.91	.4980	.2300
Do	2	Scandinavians, 30.6 per cent; Germans, 8 per cent	3,307	33.82	1.88	.4970	.2300
Do	3	Scandinavians, 13.9 per cent; large Russian population	2,005	33.70	1.86	.4960	.2280
South Dakota	1	Scandinavians, 15.5 per cent; Germans, 10.7 per cent	3,051	33.51	1.95	.4920	.2280
Utah	1	Scandinavians, 10.4 per cent; English, 8.3 per cent	1,224	33.59	1.82	.4920	.2330
Do	2	Scandinavians, 10.5 per cent; English, 13.2 per cent	2,781	32.89	1.88	.4850	.2300
Washington	2	Scandinavians, 13.5 per cent; Germans, 5.7 per cent; some Chinese, Japanese, and Indians.	6,601	33.41	1.96	.4920	.2300
Wisconsin	1	Scandinavians, 22.3 per cent; Germans, 13.6 per cent	3,297	33.68	1.89	.4940	.2320
Do	2	Scandinavians, 10.2 per cent; Germans, 26.3 per cent	7,685	33.56	1.97	.4950	.2320
Sparsely settled, not more than 3 per square mile.	8		16,151	33.53	1.92	.4930	.2320
California	3	Sparsely settled; foreign born, white, 17.8 per cent	2,108	33.49	1.97	.4900	.2310
Montana	2	Sparsely settled; foreign born, white, 18.1 per cent; Indians, Chinese, Japanese, 6.1 per cent.	6,531	33.60	1.85	.4930	.2290
Nevada	1	Sparsely settled; foreign born, white, 25.6 per cent; Japanese, 8.4 per cent.	1,441	33.75	2.08	.4970	.2320
New Mexico	2	Foreign born, white, 6.2 per cent; sparsely settled	1,857	33.26	1.84	.4930	.2400
Oregon	2	Foreign born, white, 9.1 per cent; sparsely settled	1,077	33.42	1.91	.4900	.2290
Utah	1	Foreign born, white, 11.7 per cent; sparsely settled	1,224	33.59	1.82	.4920	.2330
Wyoming	1	Foreign born, white, 18.6 per cent; sparsely settled	1,927	33.38	1.89	.4920	.2310

German and Austrian, 20 per cent plus	21		38,911	33.42	2.07	.4960	.2330
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	33.38	2.02	.4950	.2330
Do	4	Germans, 17.4 per cent; Austrians, 2.8 per cent	4,236	33.40	2.03	.4940	.2330
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	33.45	2.12	.4970	.2350
Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent; Scandinavians, 16.8 per cent.	7,601	33.86	1.93	.4970	.2290
Ohio	1	Germans, 18.9 per cent; Austrians, 8.5 per cent	17,208	33.20	2.08	.4950	.2340
Russian, 10 per cent plus	16		12,064	33.39	2.01	.4976	.2350
Colorado	2	Russians, 8.3 per cent; native parentage, 64.3 per cent	1,105	33.30	1.75	.4900	.2340
Kansas	1	Russians, 13.1 per cent; native parentage, 60.3 per cent	1,067	33.24	2.68	.4860	.2290
North Dakota	3	Russians, 26.7 per cent; native parentage, 27.3 per cent	2,005	33.70	1.86	.4960	.2280
Pennsylvania	3	Russians, 11 per cent; native parentage, 42.5 per cent	7,305	33.32	2.10	.5000	.2370
South Dakota	2	Russians, 25.6 per cent; native parentage, 33.5 per cent	594	33.61	1.87	.4950	.2280
Agricultural, mixed foreign and native white	2		97,319	33.38	2.00	.4934	.2340
Colorado	4	Native parentage, 69.5 per cent; foreign parentage, 18.2 per cent; foreign born, white, 10.7 per cent.	1,227	33.14	1.88	.4860	.2330
Illinois	8	Native parentage, 54.1 per cent; foreign parentage, 31.5 per cent; foreign born, white, 14.2 per cent.	2,451	33.42	1.98	.4930	.2330
Indiana	2	Native parentage, 76.2 per cent; foreign parentage, 16.8 per cent; foreign born, white, 6.4 per cent.	837	33.49	2.01	.4910	.2310
Iowa	1	Native parentage, 50.7 per cent; foreign parentage, 34.2 per cent; foreign born, white, 14.8 per cent.	12,136	33.54	1.93	.4920	.2300
Kansas	2	Native parentage, 72.9 per cent; foreign parentage, 16.1 per cent; foreign born, white, 7.4 per cent.	8,504	33.28	1.99	.4880	.2310
Michigan	2	Native parentage, 55.6 per cent; foreign parentage, 29.4 per cent; foreign born, white, 14.5 per cent.	12,567	33.42	1.98	.4930	.2350
Nebraska	2	Native parentage, 52.9 per cent; foreign parentage, 39.5 per cent; foreign born, white, 14.3 per cent.	3,145	33.41	1.95	.4890	.2290
New Jersey	2	Native parentage, 54.7 per cent; foreign parentage, 21.7 per cent; foreign born, white, 18.1 per cent.	8,968	33.40	2.12	.4990	.2400
New York	7	Native parentage, 70.8 per cent; foreign parentage, 17.9 per cent; foreign born, white, 10.5 per cent.	6,465	33.48	2.06	.4960	.2360
Ohio	2	Native parentage, 64.7 per cent; foreign parentage, 20 per cent; foreign born, white, 15 per cent.	14,443	33.06	1.98	.4910	.2340
Pennsylvania	6	Native parentage, 64.1 per cent; foreign parentage, 20.5 per cent; foreign born, white, 14.8 per cent.	8,616	33.29	1.98	.4940	.2350
South Dakota	1	Native parentage, 44.7 per cent; foreign parentage, 37.2 per cent; foreign born, white, 16.8 per cent.	3,051	33.51	1.95	.4920	.2280
Vermont	All.	Native parentage, 44.5 per cent; foreign parentage, 33.7 per cent; foreign born, white, 20.2 per cent.	2,077	33.43	1.90	.4980	.2380
Washington	1	Native parentage, 57.6 per cent; foreign parentage, 22.9 per cent; foreign born, white, 17.7 per cent.	5,176	33.47	2.02	.4920	.2300
Wisconsin	2	Native parentage, 38 per cent; foreign parentage, 43.2 per cent; foreign born, white, 18.2 per cent.	7,685	32.56	1.97	.4950	.2320
Desert	9		6,109	33.38	1.99	.4920	.2350
Arizona	2	Native parentage, 42.8 per cent; foreign parentage, 23.6 per cent; foreign born, white, 25.9 per cent.	1,027	33.28	1.91	.4890	.2320
Nevada	1	Native parentage, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	33.75	2.08	.4970	.2320
New Mexico	2	Native parentage, 86.9 per cent; foreign parentage, 6.2 per cent; foreign born, white, 5 per cent.	1,857	33.26	1.84	.4930	.2400

TABLE VI.—*Mean chest girth by groups and component sections, arranged on order of standing, with proportional chest circumference (expiration) for each inch of height and each pound of weight; also standard deviation for each chest measurement; first million draft recruits*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
German and Austrian, 15 per cent plus	22		126,895	33.33	2.06	.4954	0.2340
Illinois	1	Germans, 21.2 per cent; Austrians, 4.3 per cent	6,303	33.38	2.02	.4950	.2330
Do	4	Germans, 17.4 per cent; Austrians, 2.8 per cent	4,236	33.40	2.03	.4940	.2330
Indiana	1	Germans, 17.2 per cent; Austrians, 4.1 per cent	3,614	33.45	2.12	.4970	.2350
Iowa	1	Germans, 15.9 per cent; Austrians, 1.9 per cent	12,136	33.54	1.93	.4920	.2300
Minnesota	2	Germans, 22.3 per cent; Austrians, 2.9 per cent	7,601	33.86	1.93	.4970	.2290
Nebraska	1	Germans, 12.2 per cent; Austrians, 3.9 per cent	7,629	33.17	1.93	.4880	.2300
Do	2	Germans, 13.5 per cent; Austrians, 5.5 per cent	3,145	33.41	1.95	.4890	.2290
New Jersey	1	Germans, 14 per cent; Austrians, 4.4 per cent	17,795	33.19	2.12	.4970	.2390
Ohio	1	Germans, 18.9 per cent; Austrians, 8.5 per cent	17,208	33.20	2.08	.4950	.2340
Pennsylvania	3	Germans, 5.6 per cent; Austrians, 10 per cent	7,305	33.32	2.10	.5000	.2370
Do	5	Germans, 4.5 per cent; Austrians, 11.4 per cent	8,892	33.15	1.98	.4970	.2350
Do	7	Germans, 10.7 per cent; Austrians, 6.5 per cent	8,616	33.01	2.08	.4950	.2360
Wisconsin	1	Germans, 13.6 per cent; Austrians, 3.2 per cent	3,297	33.68	1.89	.4940	.2320
Do	2	Germans, 26.3 per cent; Austrians, 1.8 per cent	7,685	33.56	1.97	.4950	.2320
Do	4	Germans, 27.1 per cent; Austrians, 4.3 per cent	2,895	33.73	2.01	.5000	.2340
Mountain	11		17,103	33.33	1.96	.4921	.2330
Arkansas	2	Native parentage, white, 96.9 per cent	1,559	33.29	1.80	.4840	.2360
Massachusetts	1	Native parentage, 46.7 per cent; foreign parentage, 30.7 per cent; foreign born, white, 21.7 per cent.	1,373	32.90	2.09	.4920	.2370
Missouri	3	Native parentage, 94.4 per cent; foreign parentage, 3.9 per cent; foreign born, white, 1.4 per cent.	1,139	33.30	1.76	.4850	.2340
Montana	1	Native parentage, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	33.31	1.93	.4910	.2290
New Hampshire	1	Native parentage, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent.	665	33.72	2.09	.5010	.2380
New York	5	Native parentage, 60.4 per cent; foreign parentage, 20 per cent; foreign born, white, 16 per cent.	795	33.17	2.01	.4930	.2380
Do	8	Native parentage, 62.5 per cent; foreign parentage, 24.7 per cent; foreign born, white, 12 per cent.	2,990	33.34	2.00	.4970	.2370
Washington	3	Native parentage, 59.4 per cent; foreign parentage, 20.6 per cent; foreign born, white, 15.6 per cent.	1,539	33.62	1.83	.4930	.2300
Wyoming	1	Native parentage, 55.3 per cent; foreign parentage, 22.3 per cent; foreign born, white, 18.6 per cent.	1,927	33.38	1.89	.4920	.2310
Commuters	6		28,980	33.25	2.09	.4970	.2380
Illinois	1	Native parentage, 34.6 per cent; foreign parentage, 38.2 per cent; foreign born, white, 23.9 per cent.	6,303	33.38	2.02	.4950	.2330
New Jersey	1	Native parentage, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent.	17,795	33.19	2.12	.4970	.2390
New York	1	Native parentage, 44.7 per cent; foreign parentage, 27.6 per cent; foreign born, white, 24.6 per cent.	4,934	33.16	2.08	.4970	.2380

Mining	7		35,691	33.23	1.97	.4929	.2340
Alabama	1	Native parentage, white, 71.5 per cent; Negro, 25.6 per cent	8,841	32.93	1.84	.4840	.2330
California	2	Native parentage, white, 47.2 per cent; foreign parentage, 27.3 per cent; foreign born, white, 19.9 per cent.	943	33.81	1.87	.4990	.2310
Colorado	1	Native parentage, white, 73.9 per cent; foreign parentage, 15.7 per cent; foreign born, white, 8.6 per cent.	1,056	33.32	1.77	.4890	.2350
Do	3	Native parentage, white, 54.3 per cent; foreign parentage, 27.1 per cent; foreign born, white, 17.6 per cent.	381	33.21	1.86	.4870	.2330
Do	6	Native parentage, white, 52.4 per cent; foreign parentage, 22.9 per cent; foreign born, white, 22.4 per cent.	1,223	32.79	1.89	.4840	.2350
Idaho	1	Native parentage, white, 62.5 per cent; foreign parentage, 23.1 per cent; foreign born, white, 12.4 per cent.	4,031	33.74	2.04	.4950	.2320
Montana	1	Native parentage, white, 37.5 per cent; foreign parentage, 31.4 per cent; foreign born, white, 28.5 per cent.	5,117	33.31	1.93	.4910	.2290
Nevada	1	Native parentage, white, 33.1 per cent; foreign parentage, 25.6 per cent; foreign born, white, 22 per cent.	1,441	33.75	2.08	.4970	.2320
Pennsylvania	3	Native parentage, white, 42.5 per cent; foreign parentage, 32.5 per cent; foreign born, white, 23.8 per cent.	7,305	33.32	2.10	.5000	.2370
Do	4	Native parentage, white, 61.3 per cent; foreign parentage, 18.1 per cent; foreign born, white, 18.4 per cent.	4,827	33.15	2.00	.4960	.2350
Utah	3	Native parentage, white, 43.5 per cent; foreign parentage, 36.8 per cent; foreign born, white,, 18.6 per cent	563	33.44	1.77	.4940	.2320
Mexican, sparsely settled	14		11,064	33.22	1.99	.4874	.2335
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	33.28	1.91	.4890	.2320
Do	2	Indians, Chinese, and Japanese, 6.6 per cent; Mexicans, 7.8 per cent	2,823	33.25	1.99	.4870	.2320
New Mexico	3	Mexicans, 14.3 per cent; native parentage, 61.5 per cent	540	32.63	1.85	.4800	.2340
Texas	1	Mexicans, 17.1 per cent; native parentage, 44.1 per cent	6,676	33.24	1.98	.4870	.2340
Eastern manufacturing	5		81,598	33.20	2.08	.4970	.2380
Connecticut	2	Native parentage, 30.6 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32 per cent; Irish, 15.2 per cent.	8,708	33.34	2.20	.4990	.2380
Massachusetts	2	Native parentage, 33.3 per cent foreign parentage, 34.7 per cent; foreign born, white, 31.2 per cent; Irish, 14.9 per cent.	18,447	33.15	2.04	.4970	.2410
New Hampshire	2	Native parentage, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 23.7 per cent; French-Canadians, 17.3 per cent.	1,575	32.98	2.00	.4930	.2370
New Jersey	1	Native parentage, 28.7 per cent; foreign parentage, 37.5 per cent; foreign born, white, 31.5 per cent; Germans, 14 per cent.	17,795	33.19	2.12	.4970	.2390
New York	3	Native parentage, 59.4 per cent; foreign parentage, 24.2 per cent; foreign born, white, 15.7 per cent; Irish, 8.2 per cent.	5,150	33.32	2.07	.4980	.2380
Ohio	1	Native parentage, 33.1 per cent; foreign parentage, 37.1 per cent; foreign born, white, 28.4 per cent; Germans, 18.9 per cent.	17,208	33.20	2.08	.4950	.2340
Pennsylvania	5	Native parentage, 56.8 per cent; foreign parentage, 19.7 per cent; foreign born, white, 22.2 per cent; Austrians, 11.4 per cent.	8,892	33.15	1.98	.4970	.2350
Rhode Island	1	Native parentage, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; Irish, 13.5 per cent.	3,928	33.83	2.11	.4940	.2410

TABLE VI.—*Mean chest girth by groups and component sections, arranged on order of standing, with proportional chest circumference (expiration) for each inch of height and each pound of weight; also standard deviation for each chest measurement; first million draft recruits*—Continued.

Group and section.	Group and section No.	Description.	Number of men measured.	Mean height.	Standard deviation (height).	Mean weight. / Mean height.	Mean chest. / Mean height.
				Inches.	*Inches.*	*Pounds.*	*Inch.*
Mountain white	12		12,154	33.20	1.87	.4862	0.2367
Kentucky	1	Native parentage, 96.4 per cent; foreign parentage, 0.7 per cent; foreign born, white, 0.3 per cent; Negro, 2.5 per cent.	4,033	33.19	1.80	.4860	.2370
North Carolina	1	Native parentage, 90.8 per cent; foreign parentage, 0.5 per cent; foreign born, white, 0.2 per cent; Negro, 8.3 per cent.	2,738	33.64	1.82	.4890	.2380
South Carolina	1	Native parentage, 67.8 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.3 per cent; Negro, 31.4 per cent.	1,564	32.97	1.83	.4840	.2350
Tennessee	3	Native parentage, 89.5 per cent; foreign parentage, 1.1 per cent; foreign born, white, 0.6 per cent; Negro, 9.3 per cent.	5,900	32.93	1.85	.4810	.2350
Virginia	4	Native parentage, 88 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.8 per cent; Negro, 10.2 per cent.	5,512	33.34	1.87	.4890	.2380
West Virginia	1	Native parentage, 86.8 per cent; foreign parentage, 3.7 per cent; foreign born, white, 4.8 per cent; Negro, 4.5 per cent.	1,507	33.20	1.87	.4880	.2360
Agricultural, Negroes, 45 per cent plus	4		49,465	33.19	1.91	.4894	.2340
Alabama	2	Negro, 70.6 per cent; native parentage, white, 28.5 per cent	3,327	33.27	1.90	.4890	.2330
Do	4	Negro, 72.8 per cent; native parentage, white, 26.9 per cent	669	33.16	1.84	.4860	.2290
Arkansas	1	Negro, 55.3 per cent; native parentage, white, 41.7 per cent	4,945	33.18	1.95	.4870	.2330
Georgia	2	Negro, 61 per cent; native parentage, white, 37.3 per cent	10,070	33.33	1.91	.4900	.2360
Louisiana	1	Negro, 63 per cent; native parentage, white, 31.8 per cent	4,074	33.29	1.97	.4910	.2360
Missisippi	1	Negro, 71.2 per cent; native parentage, white, 27.3 per cent	5,149	33.24	1.88	.4880	.2310
North Carolina	4	Negro, 47.3 per cent; native parentage, white, 51.9 per cent	4,570	33.15	1.91	.4890	.2330
South Carolina	2	Negro, 59.9 per cent; native parentage, white, 39.5 per cent	3,975	33.20	1.85	.4900	.2340
Do	3	Negro, 62.2 per cent; native parentage, white, 35.7 per cent	3,804	33.05	1.85	.4910	.2380
Tennessee	1	Negro, 44.2 per cent; native parentage, white, 54.5 per cent	2,218	32.90	1.84	.4830	.2320
Texas	5	Negro, 51.1 per cent; native parentage, white, 37.3 per cent	1,346	33.35	2.05	.4870	.2310
Virginia	2	Negro, 49.6 per cent; native parentage, white, 46.6 per cent	5,352	33.07	1.89	.4900	.2360
Agricultural, native white, North; native white over 73 per cent North.	1		66,836	33.13	1.99	.4900	.2340
Illinois	3	Native parentage, white, 83.2 per cent; foreign parentage, 10.8 per cent; foreign born, white, 4.4 per cent.	8,928	33.07	1.94	.4870	.2320
Indiana	3	Native parentage, white, 82.5 per cent: foreign parentage, 11 per cent; foreign born, white, 3.9 per cent.	18,743	33.06	2.00	.4870	.2330
Iowa	2	Native parentage, white, 73.1 per cent; foreign parentage, 17.7 per cent; foreign born, white, 7.6 per cent.	7,401	33.20	1.92	.4880	.2310
Ohio	3	Native parentage, white, 78.7 per cent; foreign parentage, 13.7 per cent; foreign born, white, 4.8 per cent.	17,606	33.13	2.00	.4890	.2340
Pennsylvania	2	Native parentage, white, 79.5 per cent; foreign parentage, 9.8 per cent; foreign born, white, 7.9 per cent.	14,218	33.18	2.02	.4970	.2370
Indians, sparsely settled	13		10,038	33.13	1.89	.4860	.2340
Arizona	1	Indians, Chinese, and Japanese, 36.6 per cent; Mexicans, 8.4 per cent	1,027	33.28	1.91	.4890	.2320
New Mexico	1	Indians, 29.1 per cent; native parentage, white, 61.6 per cent	293	33.25	1.84	.4940	.2390
South Dakota	3	Indians, 87.2 per cent; native parentage, white, 8.1 per cent	247	33.74	1.74	.4950	.2280
Oklahoma	1	Indians, 9.2 per cent; native parentage, white, 72.6 per cent; Negro, 13.7 per cent.	8,471	33.09	1.87	.4850	.2330

French-Canadians, 10 per cent	19		25,787	33.11	2.07	.4966	.2397
Maine	3	Native parentage, 64.7 per cent; foreign parentage, 18.2 per cent; foreign born, white, 16.9 per cent; French-Canadians, 12.5 per cent.	1,247	33.22	1.93	.4950	.2380
Massachusetts	2	Native parentage, 33.3 per cent; foreign parentage, 34.7 per cent; foreign born, white, 31.2 per cent; French-Canadians, 9.7 per cent.	18,447	33.15	2.04	.4970	.2410
New Hampshire	1	Native parentage, 60.8 per cent; foreign parentage, 21.6 per cent; foreign born, white, 17.4 per cent; French-Canadians, 12.9 per cent.	665	33.72	2.09	.5010	.2380
Do	2	Native parentage, 51.6 per cent; foreign parentage, 24.5 per cent; foreign born, white, 23.7 per cent; French-Canadians, 17.3 per cent.	1,575	32.98	2.00	.4950	.2370
Rhode Island	1	Native parentage, 29.4 per cent; foreign parentage, 35.9 per cent; foreign born, white, 32.8 per cent; French-Canadians, 11.4 per cent.	3,928	32.83	2.11	.4940	.2410
Agricultural, native white, South	3		117,890	33.09	1.91	.4854	.2340
Alabama	3	Native parentage, white, 67.6 per cent; Negro, 31 per cent	2,670	33.07	1.80	.4840	.2350
Arkansas	2	Native parentage, white, 96.9 per cent; Negro, 0.7 per cent	1,559	33.29	1.80	.4840	.2360
Do	3	Native parentage, white, 83.9 per cent; Negro, 12 per cent	3,607	33.10	1.78	.4850	.2350
Kentucky	2	Native parentage, white, 76.4 per cent; Negro, 14.4 per cent	11,169	32.90	1.91	.4840	.2340
Louisiana	3	Native parentage, white, 61 per cent; Negro, 34.4 per cent	5,235	33.17	1.87	.4880	.2360
Maryland	3	Native parentage, white, 73.4 per cent; Negro, 14.8 per cent	2,683	33.39	1.99	.4960	.2370
Mississippi	2	Native parentage, white, 64.5 per cent; Negro, 33.4 per cent	3,394	32.83	1.86	.4800	.2310
Missouri	1	Native parentage, white, 81.4 per cent; Negro, 3.2 per cent	13,588	33.11	1.90	.4860	.2340
Do	3	Native parentage, white, 94.4 per cent; Negro, 0.3 per cent	1,139	33.30	1.76	.4850	.2340
North Carolina	2	Native parentage, white, 60.9 per cent; Negro, 38.1 per cent	4,309	33.18	1.90	.4860	.2350
Do	3	Native parentage, white, 51.9 per cent; Negro, 47.3 per cent	2,053	33.16	1.82	.4850	.2340
Do	6	Native parentage, white, 57.1 per cent; Negro, 41.2 per cent	744	33.16	1.85	.4890	.2350
Oklahoma	1	Native parentage, white, 72.6 per cent; Negro, 13.7 per cent	8,471	33.09	1.87	.4850	.2330
Do	2	Native parentage, white, 82.7 per cent; Negro, 5 per cent	10,958	33.22	1.95	.4850	.2320
Tennessee	2	Native parentage, white, 74.1 per cent; Negro, 22 per cent	6,308	33.02	1.85	.4840	.2370
Texas	2	Native parentage, white, 77.6 per cent; Negro, 15.9 per cent	22,372	32.90	1.95	.4800	.2310
Do	4	Native parentage, white, 52.3 per cent; Negro, 26.8 per cent	2,722	33.16	1.99	.4870	.2330
Virginia	3	Native parentage, white, 64.8 per cent; Negro, 33.2 per cent	3,866	33.36	1.94	.4890	.2370
West Virginia	2	Native parentage, white, 86.8 per cent; Negro, 4.5 per cent	10,860	33.31	1.93	.4910	.2350
Maritime	10		6,157	33.00	2.01	.4903	.2350
Maine	2	Native parentage, 86.1 per cent; foreign parentage, 7.8 per cent; foreign botn, white, 5.8 per cent.	828	33.64	1.95	.4970	.2370
Maryland	2	Native parentage, 65.6 per cent; foreign parentage, 1.7 per cent; foreign born, white, 1.1 per cent: Negro, 31.6 per cent.	1,068	33.00	1.88	.4900	.2360
Do	4	Native parentage, 50 per cent; foreign parentage, 1.3 per cent; foreign born, white, 0.8 per cent; Negro, 47.8 per cent.		(1)			
Massachusetts	3	Native parentage, 51.6 per cent; foreign parentage, 25.2 per cent; foreign born, white, 20.9 per cent; Negro, 2 per cent.	1,127	32.88	2.12	.4910	.2370
North Carolina	5	Native parentage, 57.1 per cent; foreign parentage, 0.9 per cent; foreign born, white, 0.7 per cent; Negro, 41.2 per cent.	254	33.24	1.84	.4910	.2350
Virginia	1	Native parentage, 49.5 per cent; foreign parentage, 3.6 per cent; foreign born, white, 2.8 per cent; Negro, 44 per cent.	2,886	32.84	2.05	.4870	.2330
Native whites of Scotch origin	15		13,473	32.95	1.90	.4844	.2347
Kentucky	2	Native parentage, 76.4 per cent; foreign parentage, 6.9 per cent; foreign -born, white, 2.2 per cent; Negro, 14.4 per cent.	11,469	32.90	1.91	.4840	.2340
North Carolina	3	Native parentage, 60.9 per cent; foreign parentage, 0.4 per cent; foreign born, white, 0.2 per cent; Negro, 38.1 per cent.	2,053	33.16	1.82	.4850	.2340

[1] Not tabulated.

TABLE VII.—*Correlation between height and weight: Group 1, agricultural, North, native white, 73 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200 and over.
59	245	1		3	12	19	22	23	25	26	22	27	23	15	11	6	4	2	2		1		1
60	178		5	7	16	26	20	18	22	16	8	9	7	9	7	2	1	2			1	2	
61	418	1	12	38	64	45	61	49	40	17	30	14	16	7	9	8	2	2		1		2	
62	975	1	31	78	127	186	174	104	92	59	42	22	21	12	11	7	4	1	2	1			
63	2,082	2	21	77	239	352	313	333	262	175	111	59	51	24	19	14	11	7	1	1	6	1	3
64	3,706	1	23	120	297	500	567	560	545	379	228	177	103	49	51	43	25	9	5	13	4	5	2
65	5,989	2	23	87	285	620	809	976	899	731	531	365	232	136	104	58	54	34	17	12	7	6	1
66	8,415		20	76	264	633	963	1,166	1,224	1,232	948	662	451	270	165	112	85	56	24	23	17	9	15
67	10,181		3	40	178	469	800	1,271	1,601	1,580	1,275	998	675	464	259	199	131	74	54	38	28	24	20
68	10,444			22	97	260	596	1,029	1,362	1,600	1,493	1,225	869	637	434	276	172	117	95	50	38	32	50
69	8,956		1	9	40	134	322	620	978	1,222	1,305	1,154	950	685	504	360	200	141	91	65	63	38	74
70	6,709		1	3	20	48	141	357	539	857	897	904	820	600	490	343	224	144	92	62	73	36	58
71	4,254		2		4	16	54	104	259	406	511	559	557	493	390	308	193	115	88	49	52	29	65
72	2,456			4	4	3	16	43	99	172	257	293	312	307	281	230	147	93	56	46	30	26	37
73	1,109			1			1	13	26	51	92	113	138	148	111	113	95	57	46	34	19	19	33
74	472		1	1	1		1	1	9	10	30	38	68	47	53	46	57	42	22	12	8	8	17
75	154		1					1	4		2	9	12	19	14	18	17	20	10	12	4	4	7
76	79					1		1		1	2	2	4	8	11	7	10	6	7	5	5	2	7
77	22					1				1	1	1	1			3	3	1	2	1	1	2	4
78	15								2	2	1	1	3	1	1	1		1				1	1
79	26						3	1	1	1	2	2	2	3	2	2	2	1	1	1			2
Total	66,885	8	144	566	1,648	3,313	4,863	6,669	7,979	8,538	7,788	6,634	5,315	3,934	2,927	2,156	1,437	925	615	426	357	246	397

Number of cases: 66,885. Height: Mean, 67.60 inches; standard deviation, 2.63 ± 0.005 inch. Weight: Mean, 141.32 pounds; standard deviation, 17.45 ± 0.032 pound.

TABLE VIII.—*Correlation between height and chest circumference (expiration): Group 1, agricultural, North, native white, 73 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	247	6	10	24	58	56	40	27	13	6	5	2
60	176	10	12	23	50	36	19	14	9	1	2	
61	420	21	45	83	85	72	55	28	19	8	1	3
62	980	60	142	188	213	168	102	49	28	17	10	3
63	2,081	106	215	399	451	421	229	142	60	27	17	14
64	3,703	172	384	734	787	689	445	257	123	64	22	26
65	5,989	226	507	985	1,279	1,188	878	502	236	105	32	51
66	8,478	246	658	1,328	1,759	1,819	1,270	746	357	157	74	64
67	10,101	205	678	1,420	2,118	2,108	1,647	996	485	246	100	98
68	10,437	179	501	1,258	2,044	2,245	1,838	1,173	641	289	135	134
69	8,923	114	358	926	1,581	1,892	1,762	1,097	645	266	134	148
70	6,686	61	220	602	1,136	1,369	1,327	969	517	267	109	109
71	4,250	26	131	290	629	876	889	661	373	192	77	106
72	2,455	12	56	142	337	490	469	443	276	102	65	63
73	1,104	5	21	47	123	182	232	214	143	66	31	40
74	470	2	5	24	45	96	109	82	53	25	14	15
75	152			3	4	23	32	40	21	20	5	4
76	79		1	5	7	15	11	9	17	6	5	3
77	22				3	1	3	4	4	1	3	3
78	15				4	2	5	1	1	1	1	
79	27			2	2	4	9	1	4	4		1
Total	66,795	1,451	3,944	8,483	12,715	13,752	11,371	7,455	4,025	1,870	842	887

Number of cases: 66,795. Height: Mean, 67.59 inches; standard deviation ,2.63±0.003 inch. Chest circumference (expiration): Mean, 33.12 inches; standard deviation, 1.99±0.002 inch.

TABLE IX.—*Correlation between weight and chest circumference (expiration): Group 1, agricultural, North, native white, first million draft recruits.*

Chest, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	1,450	8	63	156	318	341	241	156	73	32	15	14	6	3	2	3	4	2	......	3	3	4	3
30	3,943	......	43	173	468	789	800	713	457	250	135	44	32	11	6	2	7	9	1	2	......	1	......
31	8,487	......	25	127	468	1,037	1,487	1,680	1,444	1,090	601	278	131	49	27	17	14	4	2	3	2	1	......
32	12,714	......	7	44	250	735	1,326	2,004	2,443	2,274	1,621	1,033	526	250	114	41	24	10	1	4	3	3	1
33	13,765	1	2	23	88	279	694	1,364	2,043	2,505	2,355	1,894	1,166	708	338	167	76	38	9	9	3	2	1
34	11,379	......	1	8	16	64	197	541	1,045	1,587	1,851	1,818	1,605	1,143	728	412	208	84	30	21	13	5	2
35	7,458	......	......	1	7	19	54	146	322	587	875	1,048	1,135	1,037	824	641	377	196	107	47	17	14	4
36	4,028	1	1	2	2	5	8	32	79	162	255	404	506	504	578	466	386	266	163	103	57	27	21
37	1,874	......	3	1	5	4	6	11	18	32	54	100	146	175	227	271	219	189	147	95	65	63	43
38	846	......	......	3	2	......	3	7	3	7	10	18	30	47	70	91	81	80	93	76	62	63	100
39	453	......	......	2	8	5	11	7	5	9	1	......	5	7	13	33	30	32	49	34	50	53	99
40	439	......	......	3	2	4	7	2	3	2	3	5	7	3	5	8	7	14	15	25	30	24	270
Total	66,836	10	145	543	1,634	3,282	4,834	6,663	7,935	8,537	7,776	6,656	5,295	3,937	2,932	2,152	1,433	924	617	422	305	260	544

Number of cases: 66,836. Weight: Mean, 141.46 pound; standard deviation ,17.61 ± 0.032 pound. Chest circumference (expiration): Mean, 33.13 inches; standard deviation, 2.01 ± 0.004 inch.

TABLE X.—*Correlation between height and weight: Group 2, agricultural, mixed foreign and native white, North, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	319	1	4	7	20	18	29	43	36	27	39	27	17	15	12	12	6	2	......	2	......	2	......
60	293	1	10	23	37	29	31	36	29	15	22	13	12	17	4	6	2	1	3	......	......	1	1
61	668	4	15	54	102	101	108	86	54	37	28	19	22	10	7	4	1	3	4	1	3	4	1
62	1,42[illegible]	3	28	69	195	225	237	227	175	89	59	46	22	16	7	4	6	3	2	......	2	7	......
63	3,021	1	38	113	298	437	504	471	418	276	168	107	64	34	34	17	18	7	5	2	1	4	4
64	5,522	......	36	109	383	605	833	885	824	619	448	304	194	104	56	45	23	19	12	11	1	6	5
65	8,667	1	27	97	352	752	1,055	1,306	1,320	1,180	911	611	394	247	151	99	55	41	25	13	11	13	6
66	12,253	......	11	97	253	721	1,263	1,705	1,846	1,848	1,431	1,071	768	428	307	203	91	76	44	25	31	14	20
67	14,476	......	15	27	152	507	1,004	1,633	1,947	2,340	2,019	1,565	1,155	716	499	325	200	122	74	57	42	36	31
68	15,014	......	13	22	96	308	697	1,225	1,731	2,185	2,154	2,006	1,521	1,076	699	476	288	189	99	85	50	35	59
69	12,805	1	4	8	32	118	365	752	1,205	1,703	1,744	1,798	1,498	1,170	830	578	342	218	148	93	62	50	86
70	9,835	......	4	13	20	46	139	336	708	1,019	1,366	1,420	1,312	1,014	810	568	363	221	157	108	67	49	95
71	6,471	......	1	8	3	8	49	141	284	487	694	874	940	778	689	513	353	235	133	98	62	38	83
72	3,597	......	......	1	......	7	13	34	103	207	298	391	471	487	434	332	269	200	112	73	58	31	76
73	1,737	......	......	......	3	2	1	8	24	49	119	174	219	223	224	209	154	110	79	42	25	28	44
74	722	......	......	1	2	1	2	2	7	10	27	47	88	76	93	87	95	62	41	25	21	14	21
75	293	......	......	......	1	2	1	1	2	3	6	17	18	32	39	42	40	24	25	8	8	10	14
76	114	......	......	......	2	1	1	......	2	2	3	8	6	7	14	11	17	11	12	7	2	4	4
77	39	......	......	......	......	......	1	......	1	2	2	2	3	2	......	3	4	4	4	2	......	3	6
78	30	......	1	......	......	......	......	......	......	2	3	5	4	1	3	2	2	4	1	2	......	......	......
79	42	......	......	1	......	1	1	2	2	4	1	3	......	2	4	2	3	4	2	1	2	1	6
Total	97,340	12	207	650	1,951	3,889	6,334	8,893	10,718	12,104	11,542	10,508	8,728	6,455	4,916	3,548	2,332	1,556	982	655	448	350	562

Number of cases: 97,340. Height: Mean, 67.62 inches; standard deviation, 2.66±0.004 inch. Weight: Mean, 142.79 pounds; standard deviation, 17.28±0.026 pound.

TABLE XI.—*Correlation between height and chest circumference (expiration): Group 2, agricultural, mixed foreign and native white, North, first million draft recruits.*

Height in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	313	11	16	29	77	62	37	40	19	12	2	8
60	297	17	28	47	49	54	47	31	16	7	1	
61	667	42	80	123	115	124	84	59	18	12	7	3
62	1,420	69	141	243	319	278	197	93	51	16	6	7
63	3,028	115	301	503	639	608	413	240	109	62	18	20
64	5,524	207	470	822	1,123	1,166	831	487	238	102	41	37
65	8,680	258	604	1,211	1,749	1,750	1,422	877	451	219	82	57
66	12,255	258	770	1,640	2,466	2,542	2,065	1,273	677	314	134	116
67	14,468	237	724	1,656	2,636	3,094	2,613	1,719	996	435	192	166
68	15,014	203	642	1,468	2,556	3,128	2,844	2,053	1,173	508	274	165
69	12,802	124	420	1,121	2,042	2,637	2,577	1,818	1,115	540	239	169
70	9,828	71	247	726	1,410	1,996	2,013	1,603	920	472	207	163
71	6,468	40	157	401	835	1,242	1,384	1,124	643	356	157	129
72	3,599	22	61	163	451	661	712	616	482	237	105	89
73	1,737	12	18	62	175	294	360	349	244	130	57	36
74	718	3	9	19	61	103	138	143	127	66	33	16
75	294	1	4	7	24	41	53	56	49	33	15	11
76	114		2	2	12	13	19	28	17	12	4	5
77	38			2	2	5	5	9	7	2	1	5
78	29	1			5	4	5	8	3	3		
79	45	2	2	2	3	5	10	6	8	3	1	3
Total	97,338	1,693	4,696	10,247	16,749	19,807	17,829	12,632	7,363	3,541	1,576	1,205

Number of cases: 97,338. Height: Mean ,67.62 inches; standard deviation, 2.66±0.004 inch. Chest circumference (expiration): Mean, 33.37 inches; standard deviation, 2±0.003 inch.

TABLE XII.—*Correlation between weight and chest circumference (expiration): Group 2, agricultural, mixed foreign and native white, North, first million draft recruits.*

Chest circumference in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	1,685	8	73	169	323	367	312	187	112	45	30	18	8	4	6	1	7	2	......	......	1	11	1
30	4,697	4	54	201	539	878	923	808	586	370	181	65	34	10	7	9	7	8	......	3	......	8	2
31	10,248	......	36	138	552	1,151	1,702	1,981	1,743	1,390	745	430	189	92	45	19	13	7	4	3	1	5	2
32	16,750	......	16	77	300	901	1,734	2,632	3,041	2,875	2,200	1,423	833	386	179	73	45	19	8	3	2	3	......
33	19,816	......	11	21	150	383	1,079	1,996	2,809	3,479	3,308	2,627	1,853	1,018	558	305	129	59	15	10	3	2	1
34	17,827	1	6	13	35	127	404	915	1,637	2,387	2,808	2,954	2,453	1,725	1,084	658	348	140	69	35	16	11	1
35	12,629	......	6	4	13	46	119	260	613	1,078	1,543	1,883	1,912	1,683	1,382	974	509	309	158	76	36	21	4
36	7,366	......	7	6	8	10	34	67	153	325	543	817	1,003	997	999	809	620	434	246	128	81	45	34
37	3,537	......	3	6	3	10	7	16	40	72	135	225	345	401	458	460	387	318	247	168	109	58	69
38	1,574	......	9	7	5	2	4	8	6	17	30	45	88	92	154	182	199	171	150	128	86	80	111
39	653	......	8	6	11	13	4	4	4	3	4	11	14	26	33	47	67	70	52	65	59	59	93
40	537	......	8	9	12	10	15	5	9	3	6	6	8	15	12	8	11	23	29	40	47	49	212
Total	97,319	13	237	657	1,951	3,898	6,337	8,879	10,753	12,044	11,533	10,504	8,740	6,449	4,917	3,545	2,342	1,560	978	659	441	352	530

Number of cases: 97,319. Weight: Mean, 142.76 pounds; standard deviation, 17.27±0.03 pound. Chest circumference (expiration): Mean, 33.38 inches; standard deviation, 2.01±0.003 inch. Correlation: 0.6783±0.0012.

TABLE XIII.—*Correlation between height and weight: Group 3, agricultural, native white, South, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	316	1	6	8	16	18	21	32	37	42	29	27	24	12	7	17	12		2	2			3
60	235	1	8	15	23	19	20	17	20	25	29	11	12	14	12	5		1	1		1		1
61	510	3	20	32	74	78	70	56	48	38	20	18	11	11	7	6	5	1	2	1	3	5	1
62	997	2	20	67	142	170	155	133	98	72	44	35	20	9	11	5	2	3	3	2	2	2	
63	2,311	3	35	134	270	382	401	320	260	183	114	84	47	20	19	10	8	3	1	3	4	3	7
64	4,436	2	43	149	399	631	746	653	635	460	268	155	112	64	46	19	17	14	9	4	4	4	2
65	8,243	3	48	168	481	972	1,202	1,356	1,205	1,019	637	461	265	158	98	65	44	19	16	8	7	6	5
66	12,605	2	31	110	443	993	1,568	1,997	2,002	1,811	1,253	872	552	364	216	150	97	50	35	16	8	23	12
67	16,212	1	17	89	321	891	1,592	2,210	2,517	2,440	2,046	1,487	996	575	336	237	140	105	56	58	36	22	40
68	18,685		8	37	190	529	1,291	2,042	2,748	2,906	2,584	2,176	1,455	989	645	409	251	144	68	67	38	38	70
69	17,469		5	16	90	290	754	1,491	2,170	2,603	2,561	2,258	1,723	1,240	816	536	304	199	126	101	57	44	85
70	14,170		8	8	37	113	373	763	1,374	1,851	2,074	2,016	1,735	1,241	939	596	345	221	149	96	78	45	108
71	9,857		4	4	6	47	113	324	685	1,047	1,345	1,424	1,371	1,069	789	569	350	245	145	121	68	40	91
72	6,007		6		6	13	43	114	271	497	728	766	859	715	616	447	321	230	132	76	56	35	76
73	3,109			3	1	1	11	32	68	176	301	377	438	408	343	319	215	144	93	55	31	29	64
74	1,358			1	1	1	3	2	26	53	79	128	171	189	168	139	128	90	55	42	23	22	37
75	588				1	1	4	3	7	10	30	40	64	81	71	73	60	50	31	19	11	8	24
76	247				1			2	3	5	7	17	17	36	20	39	30	18	17	12	5	7	11
77	75				1		2			2	4	7	3	6	5	11	12	8	3	1	5	2	3
78	59								4	2	7	7	3	5	7	3	8	3	3	2		2	3
79	59						2		2	10	11	7	6	1	4	2	3	1		2	1	3	4
Total	117,548	18	259	841	2,503	5,149	8,371	11,547	14,180	15,252	14,171	12,373	9,884	7,207	5,175	3,657	2,352	1,549	947	688	438	340	647

Number of cases: 117,548. Height: Mean, 68.18 inches; standard deviation, 2.64±0.004 inch. Weight: Mean, 141.44 pounds; standard deviation, 16.83±0.023 pound.

TABLE XIV.—*Correlation between height and chest circumference (expiration): Group 3, agricultural, native white, South, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	300	7	27	31	60	75	45	33	11	6	2	3
60	235	8	28	40	52	41	34	15	11	1	3	2
61	521	40	65	126	92	94	60	26	10	5		3
62	1,002	70	147	215	216	160	106	41	30	7	3	7
63	2,322	141	308	448	540	413	276	114	51	16	7	8
64	4,442	258	496	863	1,013	800	513	288	113	55	23	20
65	8,267	346	849	1,454	1,896	1,619	1,095	599	248	91	37	33
66	12,598	384	1,052	2,044	2,704	2,719	1,864	1,021	486	181	71	72
67	16,290	378	1,036	2,416	3,457	3,542	2,756	1,516	698	273	131	87
68	18,760	335	1,079	2,398	3,762	4,153	3,283	2,030	1,003	397	183	137
69	17,518	217	769	1,957	3,291	3,881	3,396	2,119	1,077	430	213	168
70	14,216	129	462	1,308	2,408	3,238	2,864	1,958	1,074	425	201	149
71	9,873	57	265	762	1,501	2,128	2,149	1,494	849	381	167	120
72	6,030	34	132	393	828	1,258	1,352	950	583	279	133	88
73	3,116	10	38	158	376	666	678	535	352	176	71	56
74	1,366	2	15	48	155	248	304	248	180	90	41	35
75	588	3	5	16	73	100	126	100	87	38	24	16
76	248		1	5	25	43	62	43	34	21	7	7
77	77		1	1	10	10	16	15	15	6	3	
78	60	1			10	11	14	8	9	4	3	
79	61	1	1	1	9	18	13	10	3	2	1	2
Total	117,890	2,421	6,776	14,684	22,478	25,217	21,006	13,163	6,924	2,884	1,324	1,013

Number of cases: 117,890. Height: Mean, 68.18 inches; standard deviation, 2.64±0.004 inch. Chest circumference (expiration): Mean, 33.09 inches; standard deviation, 1.91±0.003 inch.

TABLE XV.—*Correlation between weight and chest circumference (expiration): Group 3, agricultural, native white, South, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	2,384	13	96	261	447	527	406	294	147	69	44	26	15	7	4	6	4	3	......	3	1	10	1
30	6,744	4	71	257	748	1,211	1,387	1,226	781	543	253	111	63	30	22	16	8	5	2	2	1	3	......
31	14,628	2	46	171	674	1,588	2,383	2,792	2,596	1,969	1,208	647	277	130	65	32	18	12	7	1	2	5	3
32	22,423	2	22	78	396	1,094	2,215	3,444	4,215	3,846	2,935	1,968	1,161	528	273	130	64	25	12	7	4	2	2
33	25,133	....	9	38	148	474	1,389	2,359	3,633	4,333	4,089	3,497	2,299	1,391	749	401	182	79	24	20	10	7	2
34	20,839	....	5	7	36	163	435	1,018	1,926	2,866	3,301	3,327	2,767	1,964	1,368	839	422	213	94	53	22	9	4
35	13,231	....	6	8	8	31	113	275	653	1,203	1,652	1,849	2,060	1,792	1,305	978	580	341	197	99	43	19	19
36	6,901	....	3	5	12	17	29	66	156	306	525	733	901	942	908	729	588	405	235	171	96	40	34
37	2,866	....	3	4	3	11	6	18	25	65	128	178	248	321	333	360	303	270	185	160	102	69	74
38	1,305	....	5	5	4	5	7	8	14	18	17	27	54	78	117	127	137	129	129	106	91	93	134
39	512	....	2	8	6	7	4	5	7	8	8	14	4	19	24	30	44	46	41	43	40	44	108
40	483	....	1	14	5	9	6	2	6	5	5	8	5	4	4	9	12	23	15	26	27	32	265
Total	117,449	21	269	856	2,487	5,137	8,380	11,507	14,159	15,231	14,165	12,385	9,854	7,206	5,172	3,657	2,362	1,551	941	691	439	333	646

Number of cases: 117,449. Weight: Mean, 141.44 pounds; standard deviation, 16.84±0.02 pound. Chest circumference (expiration): Mean, 33.09 inches; standard deviation, 1.93±0.0027 inch. Correlation: 0.6662±0.0011.

TABLE XVI.—*Correlation between height and weight: Group 4, agricultural, Negro, 45 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	166	1	1	2	9	16	11	14	21	17	12	17	22	9	4	5	3	1		1			
60	132	3		16	20	10	14	10	10	13	9	6	6	7	4	2	1						1
61	284	3	16	19	37	45	48	30	23	19	21	6	6	4	5	2							
62	632	2	7	37	81	114	106	93	67	47	26	14	11	8	5	2	2	1	3		2	3	1
63	1,311	2	27	42	129	207	229	206	175	114	67	41	30	6	6	7	1	7	4		2	7	2
64	2,440		13	61	190	287	380	426	337	282	166	122	75	37	26	17	6	3	4	4	2	1	1
65	4,133	1	10	64	213	396	531	656	610	562	426	292	159	82	55	28	15	9	10	10			4
66	5,951	1	19	45	196	385	608	865	866	897	740	515	358	205	109	67	31	15	13	9	1	2	4
67	7,093		9	30	102	309	571	855	1,020	1,066	968	795	554	343	204	103	64	35	27	14	7	6	11
68	7,726		9	25	78	212	463	776	962	1,056	1,120	967	737	517	338	219	105	49	34	28	7	12	12
69	6,840		4	10	44	101	233	473	748	863	1,013	938	795	560	390	299	141	88	45	34	21	9	31
70	5,226		6	4	10	40	127	274	456	587	706	719	723	483	414	294	161	93	57	23	22	6	21
71	3,573		1	4	3	15	38	114	197	353	464	458	473	394	342	248	183	106	76	30	21	19	34
72	2,106		1	2	6	2	12	30	90	145	206	233	298	265	225	150	155	109	74	42	24	13	24
73	1,103			1	1	4	3	16	22	58	89	106	118	131	161	136	87	67	40	28	12	13	10
74	440		1				1	5	9	14	29	38	49	46	59	48	38	31	28	13	14	7	10
75	193		1	1				2		3	10	12	16	20	23	22	21	21	13	11	4	2	11
76	69							4	1	2	2	4	7	9	8	10	6	7	1	1	3		4
77	31								1	2		2	4	1	3	2	1	4	6	2	2	1	
78	21						1	1		4	1	2	1		1	5	1			1	1	2	
79	33					1	1	3	3	5	2		2	1	4	4	1	1	1			2	2
Total	49,503	13	125	363	1,119	2,144	3,377	4,853	5,618	6,109	6,077	5,287	4,444	3,128	2,386	1,670	1,023	647	436	251	145	105	183

Number of cases: 49,503. Height: Mean, 67.82. inches; standard deviation, 2.68±0.006 inch. Weight: Mean, 141.61 pounds; standard deviation 16.64±0.036 pound.

TABLE XVII.—*Correlation between height and chest circumference (expiration): Group 4, agricultural, Negro, 45 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	167	5	9	26	30	30	32	20	8	4	2	1
60	131	4	23	26	30	12	17	9	6	2		2
61	282	17	44	47	67	53	25	17	9	2		1
62	631	27	80	122	159	109	78	34	12	8	2	
63	1,301	52	171	262	314	241	143	60	27	17	11	3
64	2,421	106	236	442	599	446	323	156	74	27	7	5
65	4,101	107	282	655	883	859	652	381	171	70	33	8
66	5,900	137	412	866	1,266	1,311	978	516	277	97	22	18
67	7,064	141	395	882	1,424	1,516	1,356	734	396	133	52	35
68	7,697	102	370	881	1,449	1,692	1,493	929	475	190	79	37
69	6,844	74	259	620	1,172	1,511	1,380	922	520	224	107	55
70	5,227	30	165	400	827	1,147	1,075	791	469	177	106	40
71	3,606	23	80	242	526	715	784	604	336	161	84	51
72	2,140	14	37	116	242	424	462	364	254	123	61	43
73	1,139	7	21	48	104	195	250	226	151	77	38	22
74	446	4	5	23	38	65	108	89	50	41	13	10
75	194	2	1	9	18	28	39	35	30	16	13	3
76	73		1	3	8	12	16	9	9	4	7	4
77	32			1	1	8	7	6	5	3	1	
78	18					1	5	4	6	2		
79	33	1		2	5	3	4	11	2	3		2
Total	49,447	853	2,591	5,673	9,162	10,378	9,227	5,917	3,287	1,381	638	340

Number of cases: 49,447. Height: Mean, 67.84 inches; standard deviation, 2.69±0.006 inch. Chest circumference (expiration): Mean, 33.20; standard deviation, 1.91±0.004 inch.

TABLE XVIII.—*Correlation between weight and chest circumference (expiration): Group 4, agricultural, Negro, 45 per cent plus, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	863	4	34	89	159	177	136	111	59	32	27	8	6	3	2	5	2	1	......	1	2	5	......
30	2,647	3	39	116	325	457	487	445	317	207	105	59	35	20	10	5	4	1	1	1	......	10	......
31	5,721	1	25	82	338	637	913	1,078	974	661	498	259	132	47	34	16	12	7	......	5	1	1	......
32	9,212	1	18	42	219	519	968	1,464	1,527	1,556	1,198	778	461	240	117	55	20	15	5	5	1	3	......
33	10,384	....	5	11	60	231	589	1,069	1,487	1,775	1,729	1,336	953	544	299	162	80	30	14	7	3	......	......
34	9,185	....	5	4	16	77	210	492	860	1,177	1,515	1,422	1,260	848	592	380	167	83	40	22	12	2	1
35	5,853	....	1	3	3	18	51	141	258	508	669	903	969	744	614	455	243	129	70	42	21	7	4
36	3,266	....	4	6	4	10	14	31	74	165	267	385	465	450	435	329	251	185	97	49	16	17	12
37	1,360	....	3	......	1	2	1	11	17	25	70	103	123	158	196	184	139	98	88	64	35	18	24
38	630	....	7	3	3	1	1	3	6	3	7	25	29	42	73	63	85	70	62	60	34	26	27
39	180	....	4	3	1	5	2	2	1	2	1	7	3	4	12	15	13	14	16	15	11	14	35
40	164	....	4	5	6	2	2	2	4	2	2	2	5	3	1	7	7	12	10	9	9	12	58
Total	49,465	9	149	364	1,135	2,136	3,374	4,849	5,584	6,113	6,088	5,287	4,441	3,103	2,385	1,676	1,023	645	403	280	145	115	161

Number of cases: 49,465. Weight: Mean, 131.58 pounds; standard deviation, 16.64±0.04 pound. Chest circumference (expiration): Mean, 33.19 inches; standard deviation, 1.92±0.0041 inch. Correlation: 0.6430±0.0018.

TABLE XIX.—*Correlation between height and weight: Group 5, eastern manufacturing, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	395	2	13	18	25	30	31	53	46	39	35	15	31	15	11	15	4	4	1	......	2	3	2
60	425	....	16	44	52	78	64	44	38	22	20	15	9	5	5	8	2	......	......	......	......	3	......
61	1,161	4	40	86	182	209	188	142	104	75	38	26	23	14	6	3	6	4	......	1	2	7	1
62	2,548	4	45	190	352	418	420	347	252	198	120	64	48	38	21	11	5	4	2	1	3	5	......
63	4,541	1	56	193	463	683	744	685	561	409	268	182	90	76	49	31	13	11	4	4	2	8	8
64	6,967	3	52	169	482	886	1,034	1,009	967	793	558	362	258	142	81	68	33	28	16	12	5	7	2
65	9,681	....	34	148	480	959	1,263	1,365	1,351	1,254	938	643	435	254	208	126	63	57	37	25	18	15	8
66	11,791	....	25	75	366	832	1,238	1,608	1,686	1,590	1,318	1,019	672	429	324	204	142	84	61	41	31	21	25
67	12,171	....	13	52	189	559	939	1,447	1,685	1,721	1,558	1,235	919	650	382	275	206	106	85	49	38	30	33
68	11,047	....	12	30	86	334	676	1,070	1,368	1,460	1,441	1,292	964	705	513	375	244	165	90	86	60	37	39
69	8,613	....	3	10	33	127	323	605	943	1,093	1,135	1,067	923	704	535	377	244	169	107	67	57	41	50
70	5,779	....	7	9	13	51	120	289	492	667	764	737	682	521	408	330	224	152	92	73	53	39	56
71	3,452	....	4	......	6	13	34	95	197	299	443	455	409	392	286	235	171	121	94	62	33	37	66
72	1,797	....	2	2	6	6	11	33	59	132	181	194	231	201	196	138	126	88	46	39	35	35	36
73	798	....	1	2	......	1	2	10	21	39	78	92	83	88	83	83	59	45	31	29	19	9	23
74	336	....	......	......	1	......	2	4	6	17	19	27	40	30	30	47	26	23	24	12	9	11	8
75	118	....	......	......	......	......	......	2	1	2	6	7	14	20	10	12	8	10	7	4	2	3	10
76	51	....	1	......	......	1	......	......	1	2	1	1	5	5	6	6	6	6	1	3	3	1	2
77	13	....	1	......	......	......	......	......	......	2	......	1	......	......	2	......	2	......	2	......	1	......	2
78	15	....	......	......	......	1	......	......	2	......	3	2	1	3	1	......	......	......	1	......	1	......	......
79	19	....	......	......	......	......	1	2	2	2	2	......	1	1	2	2	......	1	2	......	1	......	......
Total	81,718	14	325	1,028	2,736	5,188	7,090	8,810	9,782	9,816	8,926	7,436	5,838	4,293	3,159	2,346	1,581	1,078	703	508	375	312	371

Number of cases: 81,718. Height: Mean, 66.77 inches; standard deviation, 2.70±0.005 inch. Weight: Mean, 139.48 pounds; standard deviation, 17.71±0.030 pound.

TABLE XX.—*Correlation between height and chest circumference (expiration): Group 5, Eastern manufacturing, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	383	16	37	37	82	67	54	42	27	10	7	4
60	425	23	51	58	98	82	65	19	16	6	6	1
61	1,161	56	130	231	250	215	133	84	36	14	7	5
62	2,539	129	272	458	521	469	332	203	90	38	10	17
63	4,533	178	439	793	906	853	642	395	195	60	43	29
64	6,951	267	540	1,093	1,458	1,315	1,070	590	349	156	68	45
65	9,666	339	758	1,366	1,943	1,773	1,463	993	531	270	134	96
66	11,773	349	800	1,618	2,282	2,317	1,812	1,244	694	336	165	156
67	12,156	273	723	1,466	2,226	2,432	2,116	1,356	781	429	205	149
68	11,021	193	569	1,243	1,928	2,207	1,894	1,353	813	415	215	191
69	8,605	118	332	894	1,438	1,714	1,538	1,157	715	341	167	191
70	5,752	59	220	481	910	1,130	1,120	774	509	272	130	147
71	3,469	34	95	288	483	643	670	525	335	178	104	114
72	1,791	9	39	133	223	336	372	257	194	103	61	64
73	797	1	7	48	108	146	162	130	86	53	31	25
74	336	1	4	17	46	58	65	54	40	31	9	11
75	118	1		4	10	24	28	19	11	8	5	8
76	51		2	2	6	7	10	9	7	3	2	3
77	12			2		2	2	2	2	2		
78	14	1		2		3	3	3	2			
79	16				2	6	1		5		2	
Total	81,569	2,047	5,018	10,234	14,920	15,799	13,552	9,209	5,438	2,725	1,371	1,256

Number of cases: 81,569. Height: Mean, 66.77 inches; standard deviation, 2.69±0.004 inch. Chest circumference (expiration): Mean, 33.18 inches; standard deviation 2.08±0.003 inch.

TABLE XXI.—*Correlation between weight and chest circumference (expiration): Group 5, eastern manufacturing, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	2,031	13	113	251	452	486	317	180	85	48	21	15	11	8	6	4	4	3	1	....	1	12	....
30	5,011	2	75	312	748	1,059	992	800	480	269	130	50	31	9	7	12	8	7	2	3	1	12	2
31	10,228	2	50	263	775	1,538	1,896	1,929	1,582	1,013	605	295	127	58	34	18	12	11	6	4	2	5	3
32	14,922	1	21	106	449	1,227	1,991	2,624	2,830	2,208	1,641	887	483	227	104	63	34	10	2	7	3	3	1
33	15,812	....	14	40	197	593	1,174	1,921	2,506	2,769	2,419	1,771	1,145	650	283	190	72	41	12	5	5	3	2
34	13,549	....	11	11	44	169	500	933	1,540	2,023	2,211	2,015	1,569	1,035	719	401	194	87	44	22	12	5	4
35	9,211	....	5	6	14	55	143	278	606	938	1,259	1,398	1,315	1,121	814	586	301	191	96	44	23	14	4
36	5,436	....	1	4	6	7	23	81	175	332	504	653	749	710	688	503	429	229	153	90	46	34	19
37	2,726	....	1	6	5	8	9	13	34	71	126	210	290	313	351	327	297	236	143	115	76	48	47
38	1,368	....	....	3	8	7	3	9	12	22	25	49	85	119	132	161	144	149	131	111	80	57	61
39	705	....	1	2	3	13	7	7	10	12	11	8	24	23	28	45	62	75	75	74	63	57	105
40	599	....	1	2	13	11	14	9	8	8	10	17	4	4	10	17	22	38	28	41	61	55	226
Total	81,598	18	293	1,006	2,714	5,173	7,069	8,784	9,868	9,713	8,962	7,368	5,833	4,277	3,176	2,327	1,579	1,077	693	516	373	305	474

Number of cases: 81,598. Weight: Mean, 139.57 pounds; standard deviation, 17.81 ± 0.03 pound. Chest circumference (expiration): Mean, 33.20 inches; standard deviation, 2.11 ± 0.003^5 inch. Correlation: 0.6977 ± 0.0012.

TABLE XXII.—*Correlation between height and weight: Group 6, commuter, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	173		6	9	9	14	18	24	24	17	12	9	5	6	8	5	2	2			1	2	
60	164		11	20	28	31	19	15	13	6	5	6	2	1	1	4				1		1	
61	421		9	39	65	73	72	54	33	32	12	8	7	3	3	3	3				2	3	
62	868	1	17	71	108	155	120	118	82	71	44	24	18	18	8	6	1	1	1		1	3	
63	1,570		22	66	152	223	237	249	239	137	80	69	27	27	11	10	7	3	3	2		5	1
64	2,292		16	42	181	278	337	336	282	267	196	116	105	51	28	25	6	11	4	1	3	3	4
65	3,338		13	48	177	322	451	484	480	397	328	235	141	95	50	44	19	16	16	7	4	10	1
66	4,079		9	25	111	271	439	532	602	589	476	343	232	138	118	62	36	33	21	17	8	6	11
67	4,182		2	20	72	199	319	476	555	614	546	431	314	203	140	107	66	37	29	16	16	15	5
68	4,075			10	36	121	241	379	520	567	511	454	346	283	203	130	94	67	37	28	24	13	11
69	3,118			3	13	49	138	194	331	358	422	414	349	230	205	143	99	60	44	22	21	7	16
70	2,158		2	3	7	22	48	102	210	269	282	271	228	212	157	121	70	54	25	30	19	10	16
71	1,314				2	3	10	48	61	111	156	186	152	159	123	93	69	45	26	27	13	14	16
72	720					5	3	14	32	45	57	89	106	96	74	73	40	21	16	12	11	9	17
73	327				1	1		4	13	21	42	33	26	29	28	37	24	16	13	14	9	5	11
74	143							2	5	6	6	12	16	24	17	14	10	9	7	4	4	4	3
75	59							1	1		3	6	6	10	4	8	2	7	4	3	2	2	
76	15									2					1	3	4	1		2			2
77	7																2		2		1		2
78	3					1								1					1				
79	6							1	1								1			1	1	1	
Total	29,032	1	107	356	962	1,768	2,452	3,033	3,484	3,509	3,178	2,706	2,080	1,586	1,179	888	555	383	249	187	140	113	116

Number of cases: 29,032. Height: Mean, 66.86 inches; standard deviation, 2.75±0.008 inch. Weight: Mean, 139.79 pounds; standard deviation, 17.66±0.049 pound.

TABLE XXIII.—*Correlation between height and chest circumference (expiration): Group 6, commuter, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	159	8	17	18	27	28	26	15	10	4	4	2
60	164	11	24	26	35	31	20	8	3	3	2	1
61	422	15	46	71	89	80	62	32	14	9	2	2
62	868	40	96	145	164	156	126	79	41	9	6	6
63	1,570	70	167	237	338	296	218	127	70	21	17	9
64	2,293	80	172	364	452	413	370	206	125	76	21	14
65	3,333	109	279	466	608	657	508	358	186	84	45	33
66	4,083	116	278	565	780	778	626	448	260	115	62	55
67	4,179	121	228	503	729	841	714	507	276	146	71	43
68	4,055	71	190	458	716	784	690	505	318	174	80	69
69	3,119	46	125	321	462	618	590	417	282	131	70	57
70	2,143	32	86	183	310	426	395	314	191	102	45	59
71	1,332	9	44	102	194	279	232	184	143	69	39	37
72	718	5	9	44	96	130	161	119	75	45	12	22
73	327	2	7	23	48	45	51	62	40	19	10	20
74	143		2	12	19	22	28	27	14	14	4	1
75	58	1		4	4	7	15	11	8	3	2	3
76	15		1		1	3	4	2	1		1	2
77	7						2	3		1		1
78	3	1						1	1			
79	3						1		1	1		
Total	28,994	737	1,771	3,542	5,072	5,594	4,839	3,425	2,059	1,026	493	436

Number of cases: 28,994. Height: Mean, 66.87 inches; standard deviation, 2.74±0.008 inch. Chest circumference (expiration): Mean, 33.23 inches; standard deviation, 2.09±0.006 inch.

TABLE XXIV.—*Correlation between weight and chest circumference (expiration): Group 6, commuter, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	693	7	37	78	170	156	104	72	35	10	5	3	5	1	2			2			1	5	
30	1,772	1	31	111	254	379	352	275	188	97	33	17	11	7	4	4	1			1	2	1	
31	3,528	1	16	73	274	529	643	680	526	387	200	98	53	27	10	1	4	1	2	1		1	1
32	5,073		12	51	149	418	714	825	952	780	540	309	150	93	38	27	7	2	2	3		1	
33	5,593		4	18	70	190	385	661	917	912	874	667	426	243	99	57	26	9	2	1	1	1	
34	4,840		2	9	17	59	179	341	551	780	806	686	515	350	258	160	63	35	12	13	2	1	1
35	3,422			1	5	15	51	106	216	354	462	557	482	409	321	213	105	58	39	13	10	4	1
36	2,056			2		2	8	33	65	117	185	244	308	261	262	211	163	89	35	34	15	15	7
37	1,025			5	3	4	1	4	14	25	56	77	102	121	117	133	108	90	58	45	31	19	12
38	492			3	2	3		1	4	10	8	30	22	51	52	53	48	54	54	30	31	17	19
39	241			3	3	8	3	2	2	2	2	3	10	7	10	17	20	25	23	37	24	18	22
40	245				11	10	10	5	5	5	5	11	2	2	7	8	8	18	15	18	20	20	65
Total	28,980	9	102	354	958	1,773	2,450	3,005	3,475	3,509	3,176	2,702	2,086	1,572	1,180	884	553	383	242	196	137	106	128

Number of cases: 28,980. Weight: Mean, 139.80 pounds; standard deviation, 17.69±0.050 pound. Chest circumference (expiration): Mean, 33.25 inches; standard deviation, 2.12±0.006 inch.

TABLE XXV.—*Correlation between height and weight: Group 7, mining, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																						
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	123	1	4	3	3	8	9	13	5	11	11	19	13	12	2	4	2	2					1
60	121		4	5	17	13	20	8	10	15	7	6	2	5	4	3	1		1				
61	319		7	35	46	56	37	44	30	21	17	8	5	4	1	4		2	2				
62	615	1	15	23	82	84	101	94	85	51	29	13	18	5	6	2	2	1	1			2	
63	1,259	2	18	43	117	193	189	179	162	132	89	62	30	12	11	8	7	1		1	2	1	
64	2,148		18	52	124	225	304	336	315	283	176	113	74	51	30	19	11	11	1	2	1		2
65	3,384		8	39	144	268	394	468	547	477	355	261	156	103	57	38	17	22	9	11	4	2	4
66	4,733	1	4	22	114	283	479	601	672	644	633	446	303	191	132	80	44	30	27	6	12	5	4
67	5,263		5	25	64	191	364	510	738	803	736	612	432	306	176	137	56	39	24	16	12	9	8
68	5,205		1	8	25	97	246	449	593	746	767	654	545	377	242	202	98	61	38	24	14	9	9
69	4,504		3	1	19	38	155	289	443	534	670	589	558	399	276	224	127	63	38	21	23	12	22
70	3,409				6	22	71	157	238	366	440	473	455	344	288	205	126	79	59	29	13	15	23
71	2,307		1		1	5	24	48	122	183	255	325	329	302	215	161	107	81	69	27	18	16	18
72	1,254					2	2	14	50	66	122	157	182	153	150	125	82	52	43	26	11	6	11
73	620						1	11	18	20	50	56	80	86	72	64	59	44	25	8	8	6	12
74	250							2	2	3	10	20	24	25	35	29	27	24	17	10	7	3	12
75	120					1		3	2	1	7	7	17	12	16	14	13	8	6	6	1	3	3
76	49							1	1	1	3	1	1	5	6	10	2	3	7	4	3		1
77	21							1		1	1	1	1	2	3	3	3	2	3				
78	14									1	2		1	4			2	3	1				
79	12						1	1	1			1				2	2			2	2		
Total	35,730	5	88	256	762	1,486	2,397	3,229	4,034	4,359	4,380	3,824	3,226	2,398	1,722	1,334	788	528	371	193	131	89	130

Number of cases: 35,730. Height: Mean, 67.49 inches; standard deviation, 2.72±0.007 inch. Weight: Mean, 142.25 pounds; standard deviation, 16.86±0.045 pound.

TABLE XXVI.—*Correlation between height and chest circumference (expiration): Group 7, mining, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	130	4	9	17	20	23	27	16	8	4	1	1
60	120	8	13	16	23	20	17	15	5	2		1
61	319	22	45	64	56	54	38	20	13	4	2	1
62	614	30	57	115	138	112	80	48	25	5	2	2
63	1,256	71	108	212	274	241	167	108	47	17	7	4
64	2,143	82	191	357	451	400	314	191	88	42	17	10
65	3,375	104	269	517	661	664	531	326	176	74	34	19
66	4,732	143	305	633	899	994	776	517	276	99	49	41
67	5,259	94	260	667	1,035	1,097	892	593	361	150	61	49
68	5,196	68	238	531	966	1,095	956	669	389	164	68	52
69	4,502	43	157	419	764	953	882	645	342	144	94	59
70	3,403	33	100	269	542	669	712	524	277	161	62	54
71	2,303	22	51	148	312	467	546	308	238	122	44	45
72	1,253	7	17	72	150	254	284	202	129	72	40	26
73	620		5	35	66	113	138	123	72	36	12	20
74	248		6	7	25	35	51	45	39	24	8	8
75	120		3	6	12	14	20	32	20	8	3	2
76	48		1	3	5	8	9	4	9	6		3
77	20				1	5	7	2	4	1		
78	14			1	1	2	4	3	2	1		
79	11				3	1	1	4	2			
Total	35,686	731	1,835	4,089	6,404	7,221	6,452	4,395	2,522	1,136	504	397

Number of cases: 35,686. Height, mean, 67.49 inches; standard deviation, 2.72±0.007 inch. Chest circumference (expiration): Mean, 33.26 inches; standard deviation, 198±0.005 inch.

Table XXVII.—*Correlation between weight and chest circumference (expiration): Group 7, mining, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	725	5	36	82	138	148	124	86	47	31	8	5	3	1	1	5	1					3	1
30	1,843	1	22	73	229	317	370	342	227	123	71	29	16	8	5	4	2			1	1		2
31	4,119		15	59	234	434	694	782	725	534	314	160	79	50	15	10	4	3	2		3		2
32	6,505		3	26	105	341	655	951	1,185	1,111	911	560	329	194	61	51	9	9	2	1			1
33	7,343		5	7	40	169	374	665	1,024	1,237	1,199	984	718	468	215	155	47	24	7			2	3
34	6,478		1	4	8	41	119	296	549	812	1,049	1,048	933	664	426	278	129	70	35	7	5	3	1
35	4,348			1	1	19	39	76	201	360	562	676	693	535	427	343	196	120	59	25	8	5	2
36	2,430			1	2	3	12	17	47	113	203	269	315	354	324	253	207	126	92	47	24	14	7
37	1,091		1		2		2	4	11	22	39	72	102	100	158	153	116	101	86	49	29	24	20
38	463		2			2	2	2	4	2	5	15	30	35	49	57	54	52	47	31	28	20	26
39	201			2	1	5	2	4	3	2	3	3	2	9	15	17	18	15	25	20	21	8	26
40	145				2	2	1		3	2	6	3	3		4	4	3	7	11	17	11	12	54
Total	35,691	6	85	255	762	1,481	2,394	3,225	4,026	4,349	4,370	3,824	3,223	2,418	1,700	1,330	786	527	366	198	130	91	145

Number of cases: 35,691. Weight: Mean, 142.28 pounds; standard deviation, 16.90±0.05 pound. Chest circumference (expiration): Mean, 33.23 inches; standard deviation, 1.97±0.01 inch. Correlation: 0.6764±0.0019.

TABLE XXVIII.—*Correlation between height and weight: Group 8, sparsely settled, not more than 3 per square mile, first million draft recruits*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	36			1		6	3	3	7	1	3	5	2		1	2	2						
60	28		1	3	3	2	3		2	2	2	4		1	2				1		1		1
61	66			7	7	6	14	9	8	5	7			1		2							
62	185		10	13	26	34	31	28	16	9	5	3	1	3	2	2			1		1		
63	352		2	13	33	44	74	63	41	27	21	20	5	6	1	1			1				
64	718		2	10	37	91	91	140	101	86	53	32	28	14	12	8	3	5	2	1	1		1
65	1,277		5	7	33	89	150	188	229	194	142	93	63	25	23	11	9	7	2	1	3	2	1
66	1,796			14	34	75	172	222	287	304	237	162	130	56	29	34	18	8	5	3	2	1	3
67	2,312			4	15	67	144	257	325	393	311	273	191	134	67	50	34	21	7	4	7	2	6
68	2,563				8	32	88	182	312	369	408	338	285	210	115	90	41	30	19	9	6	12	9
69	2,281		1		6	12	48	116	224	251	331	334	289	238	143	119	52	41	24	19	15	6	12
70	1,849				3	1	19	43	98	169	211	290	252	239	154	129	81	51	32	16	7	10	14
71	1,318					3	8	17	44	86	144	200	161	174	148	123	75	48	35	21	12	5	14
72	734						3		12	24	67	68	112	102	110	77	61	39	20	12	7	5	15
73	355							2	2	13	21	28	50	37	53	35	35	34	19	6	9	3	8
74	164								2	3	8	10	10	22	27	22	12	17	6	9	7	3	6
75	82							1			1	7	5	6	15	13	7	7	9	2	2	5	2
76	25											2	1		2	2	5	2	1	1	1	3	5
77	10						1			1				1		2	1		2	1	1		
78	7									1	1	3						1	1				
79	7						1						1	2	1				1	1			
Total	16,165		21	72	205	462	850	1,271	1,710	1,938	2,003	1,872	1,586	1,271	905	722	436	311	188	106	82	57	97

Number of cases: 16,165. Height: Mean, 68.01 inches; standard deviation, 2.63 ± 0.010 inch. Weight: Mean, 144.84 pounds; standard deviation 16.93 ± 0.064 pound.

TABLE XXIX.—*Correlation between height and chest circumference (expiration): Group 8, sparsely settled, not more than 3 per square mile, first million draft recruits.*

Height, in inches.	Total.	Chest, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	34		2	4	5	12	3	7	1			
60	26	3	3	4	2	4	6	1	1	2		
61	67	3	10	10	17	11	10	2	4			
62	185	10	19	33	53	38	10	14	4	2		2
63	352	13	31	53	83	66	59	33	8	3	1	2
64	719	14	62	106	161	141	127	51	34	13	6	4
65	1,278	23	80	163	259	284	230	121	67	30	15	6
66	1,793	24	107	218	337	417	338	194	96	36	16	10
67	2,310	20	95	266	440	502	436	275	170	69	21	16
68	2,558	26	73	223	473	563	516	377	176	66	34	31
69	2,278	9	57	169	351	471	471	368	217	103	37	25
70	1,845	9	35	108	244	360	398	343	194	92	36	26
71	1,318	3	20	64	161	261	292	251	138	62	42	24
72	733		8	27	64	116	184	156	104	45	18	11
73	353		2	6	38	60	79	68	52	25	13	10
74	163			2	11	23	40	38	23	20	3	3
75	82		2		4	10	20	17	15	7	4	3
76	25				1	3	2	6	8	1	2	2
77	10					4	3		1	2		
78	7					1	3	2		1		
79	7					1	1	1	3		1	
Total	16,143	157	606	1,456	2,704	3,348	3,228	2,325	1,316	579	249	175

Number of cases: 16,143. Height: Mean, 68.01 inches; standard deviation, 2.63 ±0.010 inch. Chest circumference (expiration): Mean, 33.52 inches; standard deviation, 1.90 ±0.007 inch.

TABLE XXX.—*Correlation between weight and chest circumference (expiration): Group 8, sparsely settled, not more than 3 per square mile, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	149	1	5	13	28	39	27	20	8	5	1		1								1		
30	601	1	7	27	48	106	132	117	72	38	30	13	2	3	2	2	1						
31	1,453		2	17	57	128	241	277	293	197	122	70	21	13	7	4	1	1			2		
32	2,705		4	11	43	112	237	389	471	489	411	278	140	59	38	14	3	4	1			1	
33	3,350			4	15	54	135	288	464	604	546	491	337	203	114	63	22	7	2		1		
34	3,228				6	19	57	130	291	391	498	527	463	351	209	161	67	38	15	3	2		
35	2,327				3	4	14	40	83	152	272	327	378	345	256	200	120	73	31	10	12	5	2
36	1,318						3	5	20	48	104	126	177	213	184	148	113	82	39	28	14	7	7
37	581							1	2	6	17	25	54	67	71	86	64	60	49	31	20	16	12
38	249									3	4	9	13	13	17	37	36	28	30	18	14	12	15
39	114				4	1	2	1	1	1			1	1	5	8	9	11	17	8	10	9	25
40	76								1		1	2			1	2		6	5	5	4	9	40
41																							
42																							
43 and over																							
Total	16,151	2	18	72	204	463	848	1,268	1,706	1,934	2,006	1,868	1,587	1,268	904	725	436	310	189	103	80	59	101

Number of cases: 16,151. Weight: Mean, 144.86 pounds; standard deviation, 16.94±0.064 pound. Chest circumference (expiration): Mean, 33.53 inches; standard deviation, 1.92±0.007 inch.

TABLE XXXI.—*Correlation between height and weight: Group 9, desert, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–201
59	22			1	1	5		2	6	1		3			2		1						
60	12			2	1			1	1	1	1	2			1						1		1
61	35		2	6	6	2	7	5	3		2					2							
62	91		7	11	14	13	7	12	10	6	2	4	1	1		1			1		1		
63	159		4	12	16	21	33	23	17	15	7	7	3	1									
64	302		2	5	27	38	38	54	36	45	22	13	5	4		5	2	2	1	1	1	1	
65	505		4	6	21	46	73	81	75	68	47	29	19	11	9	5	4	1	3	1	1		1
66	716			9	17	36	90	109	115	111	74	58	36	26	9	6	7	2	5	2	1		3
67	888			3	18	41	72	106	162	141	95	102	52	38	20	16	8	7	2		2	1	2
68	894			1	7	18	54	92	128	129	144	92	75	63	35	17	10	9	9	5		2	4
69	861				5	14	30	44	86	110	134	121	108	81	43	41	13	13	5	3	2	1	7
70	648					3	11	29	50	78	98	91	82	72	47	31	20	15	8	3	2	2	6
71	449					1	3	8	22	39	57	73	63	43	38	38	18	17	11	6	5	3	4
72	288						3	2	9	11	36	20	40	38	48	23	19	12	11	5	5		6
73	141							1	1	7	12	15	27	17	15	12	12	7	3	4	3	1	4
74	66								1	2	7	4	5	8	10	10	7	4	2	3		1	2
75	25											3	2	3	3	6	2	2		1	1		2
76	12						1					1	1		2	3	1	1	1		1		
77	2																1				1		
78	3												1				1		1				
79	2						1															1	
Total	6,121		19	56	133	238	423	569	722	764	738	638	520	406	282	216	126	92	63	34	27	13	42

Number of cases: 6,121. Height: Mean, 67.87 inches; standard deviation, 2.72±0.017 inch. Weight: Mean, 142.08 pounds; standard deviation, 17.23±0.105 pound.

TABLE XXXII.—*Correlation between height and chest circumference (expiration): Group 9, desert, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	22		1	2	4	10		3	1		1	
60	12	2	1	1	2	1	3	1	1			
61	34	3	4	9	8	7	1		2			
62	91	6	7	18	27	15	5	10	1			2
63	159	5	11	21	37	40	23	15	4	3		
64	302	6	20	51	72	57	51	26	7	7	2	3
65	505	13	35	72	90	109	83	42	32	18	6	5
66	713	9	38	104	149	154	123	75	31	16	7	7
67	886	17	49	107	180	207	132	99	56	22	11	6
68	893	12	34	73	177	208	161	113	68	28	15	4
69	860	15	30	75	143	170	162	135	70	31	16	13
70	646	8	19	57	92	123	141	105	49	29	11	12
71	449	2	6	30	64	96	90	60	55	24	10	12
72	288	1	4	15	31	37	60	54	44	26	12	4
73	140		4	6	14	27	30	29	16	6	1	7
74	66		1	1	5	9	26	8	7	8		1
75	25		1		1	6	5	6	3		1	2
76	12			2	1	2		3	2	1		1
77	2						1			1		
78	3						1			1		1
79	2					1					1	
Total	6,110	99	265	644	1,097	1,279	1,098	784	449	221	94	80

Number of cases: 6,110. Height: Mean, 67.87 inches; standard deviation, 2.72±0.017 inch. Chest circumference (expiration): Mean, 33.37 inches; standard deviation, 1.98±0.012 inch.

TABLE XXXIII.—*Correlation between weight and chest circumference (expiration): Group 9, desert, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	99	1	4	10	17	18	19	14	10	4	......	......	1	......	......	......	......	......	......	......	1	......	......
30	262	1	6	15	32	37	52	39	37	15	14	8	3	1	1	1	......	......	......	......	......	......	......
31	645	......	5	18	40	65	125	118	112	64	49	22	15	4	4	2	1	......	......	......	1	......	......
32	1,098	......	3	8	28	65	112	169	188	177	154	100	54	21	9	3	2	1	2	......	1	1	......
33	1,278	......	......	4	13	37	72	142	206	244	181	152	108	56	27	26	7	1	......	1	1	......	......
34	1,098	......	......	1	2	14	33	55	115	153	179	169	138	97	69	33	25	10	3	......	2	......	......
35	786	......	......	......	1	1	8	24	40	78	109	117	108	103	66	62	28	19	12	8	1	1	......
36	450	......	......	......	......	1	1	5	11	23	40	46	60	86	67	36	24	24	18	4	2	......	2
37	221	......	......	......	......	......	......	......	2	2	9	14	22	34	31	34	18	22	12	4	7	2	8
38	94	......	......	......	......	......	......	......	......	1	......	5	9	4	7	14	11	12	14	6	3	2	6
39	43	......	......	......	......	......	......	......	......	......	......	1	1	......	1	4	5	3	7	4	4	3	10
40	35	......	......	......	......	......	1	......	......	......	......	2	......	......	......	1	2	3	......	1	2	6	17
Total	6,109	2	18	56	133	238	423	566	721	761	735	636	519	406	282	216	123	95	68	28	25	15	43

Number of cases: 6,109. Weight: Mean, 142.08 pounds; standard deviation, 17.26 ± 0.105 pound. Chest circumference (expiration): Mean, 33.38 inches; standard deviation, 1.99 ± 0.012 inch.

TABLE XXXIV.—*Correlation between height and weight: Group 10, maritime, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	33			2	3		5	1	4	2	4	2	2	2	1	2		1	1		1		
60	28			4	2	5	1	1	1	1	6	1	2	1	2	1							
61	63	1	4	6	9	11	8	4	4	2	4	2	4			1	2				1		
62	114	2	4	3	13	19	24	12	12	8	6	5		3	2				1				
63	243	1	3	13	24	35	49	36	39	19	10	3	3	4	1	1	1		1				
64	369		3	6	24	41	53	60	56	48	36	13	9	8	2	2	2	1	2	1		2	
65	621		2	6	30	64	103	98	92	82	51	29	24	10	12	5	5	3	3	1			1
66	827			3	21	55	99	114	139	127	100	67	37	24	12	10	6	9		1	1	1	1
67	940		1	6	12	39	77	106	143	157	117	96	69	44	28	16	8	9	4	2	2	3	1
68	904			7	7	22	53	86	116	135	115	119	85	53	32	28	15	11	6	6	3	4	1
69	752				1	10	25	60	73	91	124	109	77	62	38	26	24	12	6	6	2	1	5
70	594				1	2	9	25	45	76	103	73	55	67	43	30	23	13	13	4	5		7
71	325			1		2	1	6	17	33	44	49	44	41	32	20	10	9	9	4		2	1
72	205			1			1	8	9	10	18	23	25	28	30	15	10	12	5	2	4	1	3
73	78								4	2	7	8	13	9	14	8	4	2	3	2			2
74	38								1	2	2	5	4	7	2	6	3	4	1	1			
75	17									1		2		3		1	2	2	2	2	2		
76	5					1							1	1				1					1
77	2					1						1											
78	3									1						1		1					
Total	6,161	4	17	58	147	307	508	617	755	797	747	607	454	367	251	173	115	90	57	32	21	14	23

Number of cases: 6,161. Height: Mean, 67.31 inches; standard deviation, 2.70±0.016 inch. Weight: Mean, 140.38 pounds; standard deviation, 16.86±0.103 pound.

Table XXXV.—*Correlation between height and chest circumference (expiration): Group 10, maritime, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
58 and under												
59	33	2	2	4	4	9	2	6	1	2		1
60	30	3	3	6	5	5	3	3	2			
61	62	9	13	12	9	5	9	3	1			1
62	113	13	15	22	21	16	14	7	4	1		
63	244	27	29	47	54	51	12	13	5	5	1	
64	367	22	43	59	82	70	46	25	11	4	3	2
65	620	28	62	107	145	117	76	40	27	9	6	3
66	824	28	51	138	189	185	111	61	39	13	5	4
67	941	26	57	124	198	200	145	111	47	23	4	6
68	904	25	47	116	157	209	139	98	68	26	10	9
69	752	18	34	69	132	139	162	87	59	21	12	19
70	594	8	23	49	89	135	123	68	54	22	9	14
71	324	2	10	24	52	73	70	39	31	14	6	3
72	206	2	3	15	24	42	41	24	27	20	3	5
73	78	1	1	2	15	5	20	12	15	1	2	4
74	38		1	1	9	6	4	7	2	7	1	
75	17		1			2	5	2		6		1
76	5			2			1		1	1		
77	2					1	1					
78	3				1			1		1		
Total	6,157	214	395	797	1,186	1,270	984	607	394	176	62	72

Number of cases: 6,157. Height: Mean, 67.31 inches; standard deviation, 2.70±0.016 inch. Chest circumference (expiration): Mean, 33 inches; standard deviation, 2.03±0.012 inch.

TABLE XXXVI.—*Correlation between weight and chest circumference (expiration): Group 10, maritime, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	213	3	10	25	38	43	32	24	16	7	8		2		2		2						1
30	396	1	5	10	41	66	100	74	43	′27	13	5	6	2	1	1						1	
31	798	1	2	8	33	90	128	146	137	113	69	35	17	7	4	4	1			1	2		
32	1,185			2	19	56	154	168	210	189	175	104	58	25	14	6	3		2				
33	1,270			4	9	43	67	131	195	235	194	146	108	71	31	16	10	6	4				
34	985			2	1	2	25	54	95	138	147	157	130	92	56	39	25	13	5		3	1	
35	605			4	1		1	13	39	66	88	94	76	71	65	27	23	19	10	3	3	2	
36	395				2	2		2	14	19	44	51	60	47	46	44	28	17	10	6		3	
37	177							2	3	5	5	11	12	20	31	17	16	23	11	12	5	2	2
38	61				1			1			1	3	3	4	6	12	4	5	9	4	3		5
39	39			2				1	1				1	3	1	4	1	5	4	6	2	2	6
40	32					1			2			1		2			3	2	3	1	2	3	12
Total	6,156	5	17	57	145	303	507	616	755	799	744	607	473	344	257	170	116	90	58	33	20	14	26

Number of cases: 6,156. Weight: Mean, 140.43 pounds; standard deviation, 16.90 ± 0.103 pound. Chest circumference (expiration): Mean, 33 inches; standard deviation, 2.04 ± 0.012 inch.

TABLE XXXVII.—*Correlation between height and weight: Group 11, mountain, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	55		2	2	2	2	6	5	6	5	4	5	6	6		2	1		1				
60	47		1	2	3	6	5	5	7	4	3	2	1	2	1	3					1		1
61	119		3	12	12	26	12	27	9	3	3	5	3	1	2				1				
62	260		7	9	37	46	49	38	26	15	8	11	4	4	3	2			1				
63	477		2	13	38	83	81	78	61	42	33	30	6	3	2	2	1	1	1				
64	858			6	56	106	135	154	128	107	61	33	25	21	8	8	1	2	4	1	1		1
65	1,537		2	5	41	123	194	238	258	225	162	101	74	42	24	13	7	9	8	3	5	1	2
66	2,071		2	4	39	110	221	282	317	318	271	155	141	81	48	38	16	11	8	3	2	1	3
67	2,577		1	1	33	102	160	283	385	411	360	311	194	124	80	59	22	20	8	6	8	4	5
68	2,564		1	3	13	43	117	229	323	371	374	326	260	193	112	86	54	19	20	8	5	5	2
69	2,271		1	3	4	21	70	130	220	319	303	311	278	196	155	95	53	36	31	16	8	7	14
70	1,763				3	5	31	61	119	182	226	260	237	202	137	120	70	48	22	16	7	9	8
71	1,224		2			1	6	19	58	90	144	176	174	151	125	111	66	40	30	7	6	3	15
72	703		1				1	7	17	37	68	88	119	92	77	59	50	35	16	14	8	3	11
73	336						1	1	3	10	20	29	48	45	43	34	33	23	14	6	6	5	15
74	135								1	2	6	7	13	20	18	10	20	10	12	3	5	4	4
75	59				1			1				2	5	8	8	7	5	11	2	1	1	3	4
76	19						1	1			1		1	5	1	3	1	2		1			2
77	10										1	1			1	2	2		2				1
78	8										1			1	1		2	1			1		1
79	6										1	1	1		1					2			
Total	17,099		25	60	282	674	1,090	1,559	1,938	2,141	2,050	1,854	1,590	1,197	847	654	404	268	181	87	64	45	89

Number of cases: 17,099. Height: Mean, 67.72 inches; standard deviation, 2.68±0.010 inch. Weight: Mean, 142.96 pounds; standard deviation, 16.76±0.091 pound.

TABLE XXXVIII.—*Correlation between height and chest circumference (expiration): Group 11, mountain, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	57	2	4	10	14	11	8	5	1	2		
60	47	1	9	8	10	6	3	5	3	1		1
61	120	6	16	23	19	26	18	6	5	1		
62	260	11	31	51	60	44	31	18	8	4	1	1
63	476	13	50	87	108	87	73	24	24	4	3	3
64	857	17	80	152	193	180	124	49	34	15	10	3
65	1,539	40	108	224	318	331	260	142	63	33	9	11
66	2,071	49	124	257	403	451	381	227	115	40	15	9
67	2,577	40	122	328	509	534	450	322	170	65	16	21
68	2,565	31	105	249	468	590	484	331	162	95	26	24
69	2,267	23	71	200	391	483	472	294	183	78	41	31
70	1,762	15	41	128	260	353	354	291	178	83	40	19
71	1,223	6	24	83	164	222	278	192	150	63	23	18
72	706	4	8	33	90	136	158	116	77	45	23	16
73	336		2	11	37	58	80	59	40	25	12	12
74	135		3	2	9	18	38	28	19	11	4	3
75	59	1	1	1	4	8	11	12	11	4	3	3
76	19		1	1	2	2	3	4	2	2		2
77	10				1		4		3	1		1
78	8			1			2	1	1	2		1
79	7					1	2	1	2	1		
Total	17,101	259	800	1,849	3,060	3,541	3,234	2,127	1,251	575	226	179

Number of cases: 17,101. Height: Mean, 67.72 inches; standard deviation, 2.69±0.010 inch. Chest circumference (expiration): Mean, 33.32 inches; standard deviation, 1.94±0.007 inch.

TABLE XXXIX.—*Correlation between weight and chest circumference (expiration): Group 11, mountain, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	251	1	10	10	49	57	50	32	19	14	4	3	1				1						
30	800		5	17	84	152	183	145	111	44	41	8	5	2	1	1							1
31	1,850		2	14	69	191	304	356	325	264	162	84	41	18	8	4	4	1			3		
32	3,061		2	10	51	154	288	455	539	558	420	283	167	73	32	21	4	3	1				
33	3,542			4	20	85	178	340	503	611	532	474	365	232	103	61	19	9	3	3			
34	3,235			2	1	27	59	172	307	408	503	499	458	333	217	119	65	39	16	8		1	1
35	2,127		1		1	5	18	37	98	168	269	311	332	284	214	178	115	57	20	13	4	2	
36	1,249			1		1	2	13	27	61	94	144	150	193	152	147	104	55	57	20	16	7	5
37	576				1		1	6	3	10	25	39	56	67	76	84	62	61	39	13	12	11	10
38	227		2	1				2	1		3	6	8	16	19	33	27	22	26	16	15	10	20
39	99				6	1	2	3	3	2				3	3	8	3	9	11	7	11	9	18
40	86		1	1		1	2	2	1	1	2	1				1	3	7	7	9	3	5	39
Total	17,103	1	23	60	282	674	1,087	1,563	1,937	2,141	2,055	1,852	1,583	1,221	825	657	407	263	180	89	64	45	94

Number of cases: 17,103. Weight: Mean, 142.97 pounds; standard deviation, 16.78±0.061 pound. Chest circumference (expiration): Mean, 33.33 inches; standard deviation, 1.96±0.007 inch.

TABLE XL.—*Correlation between height and weight: Group 12, mountain whites, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	55			1	2	10	4	4	9	4	5	3	2	5		5						1	
60	34	1		1	3		4	2	6	1	3	4	5	1	1	1			1				
61	60		1	4	5	12	5	7	3	6	4	2	4	1	3	1	2						
62	135	3	3	3	22	21	17	22	12	8	6	5	4	1	3		1	1			1	2	
63	340	1	7	16	42	63	48	61	38	26	18	8	3	4	1	1	1	2					
64	777		9	26	92	134	133	103	112	63	44	18	16	11	4	5	2	3				2	
65	1,394	1	2	24	105	173	235	220	210	142	110	62	48	24	13	6	11	2	2	1	1	2	
66	2,087		5	26	91	211	276	364	339	284	191	114	69	33	33	16	14	7	3	6	1	2	2
67	3,014		1	15	50	178	350	490	506	411	346	288	144	83	59	41	19	18	10	3	1	1	
68	3,480		3	10	40	110	281	426	582	590	430	386	247	156	87	61	23	21	10	4	6	2	5
69	3,165		2	4	9	59	136	333	440	492	469	415	302	201	114	69	47	22	17	11	12	7	4
70	2,690		1	1	8	29	72	181	286	377	399	386	305	219	175	91	57	42	27	15	6	6	7
71	1,909			1		11	27	72	159	208	263	301	264	217	130	99	56	36	22	13	8	6	16
72	1,117						3	23	48	97	158	167	165	151	106	65	42	22	19	13	8	7	23
73	579		1			1	1	4	10	35	62	77	82	79	65	51	36	38	11	8	3	4	11
74	238			1				1	2	8	13	26	42	34	32	29	17	9	8	5	3	3	5
75	108									1	4	6	12	17	17	20	11	6	4	5	2	2	1
76	44		1							4		3	4	4	7	8	7	3	2		1		
77	16						1			1		1		4	1	2	3			1		2	
78	5									2						2		1					
79	7				1							1				1	2		1				1
Total	21,254	6	36	133	470	1,012	1,593	2,313	2,762	2,760	2,525	2,273	1,718	1,245	851	574	351	233	137	85	53	49	75

Number of cases: 21,254. Height: Mean, 68.29 inches; standard deviation, 2.57±0.008 inch. Weight: Mean, 140.24 pounds; standard deviation, 16.05±0.053 pound.

TABLE XLI.—*Correlation between height and chest circumference (expiration): Group 12, mountain whites, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	55	4	4	7	11	5	14	2	2	2	1	3
60	34	4	2	6	6	5	4	5		2		
61	60	1	6	10	13	13	8	5	3			1
62	136	8	14	35	29	24	12	9	4		1	
63	341	18	30	74	95	72	34	14	4			
64	777	41	87	166	171	152	91	44	18	4	2	1
65	1,399	46	128	228	328	298	187	112	46	18	7	1
66	2,084	47	164	347	466	461	324	153	78	26	11	7
67	3,009	51	166	409	646	684	520	300	147	55	22	9
68	3,475	50	160	384	715	778	640	430	192	77	27	22
69	3,161	28	116	271	622	712	675	412	189	75	33	28
70	2,688	14	70	225	440	608	549	405	233	80	48	16
71	1,906	8	34	138	285	399	415	323	179	86	19	20
72	1,113	5	11	64	148	257	232	172	128	45	26	25
73	577	2	2	16	70	123	129	101	64	45	10	15
74	238	1	4	4	25	42	56	46	29	18	4	9
75	108		2	2	5	9	24	25	23	10	4	4
76	44			1	7	13	6	6	11			
77	16		1			4	3	4	2	1		1
78	5					2	2	1				
79	7			1			1	2	1	2		
Total	21,233	328	1,001	2,388	4,082	4,661	3,926	2,571	1,353	546	215	162

Number of cases: 21,233. Height: Mean 68.29 inches; standard deviation, 2.57±0.008 inch. Chest circumference (expiration): Mean, 33.20 inches; standard deviation, 1.86±0.006 inch.

TABLE XLII.—*Correlation between weight and chest circumference (expiration): Group 12, mountain whites, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	325	5	9	37	70	72	48	31	26	6	4	8	4			1						3	1
30	1,002		8	43	107	206	229	163	119	56	38	13	9	2	2	1	2	1	1			2	
31	2,389	1	13	37	134	311	408	489	402	275	150	77	44	23	9	10	1	1	2	1		1	
32	4,088			9	99	255	437	724	802	691	487	300	155	72	28	14	7	4	3	1			
33	4,666		1	2	38	115	321	577	771	784	711	584	351	187	114	56	29	12	8	1	1	3	
34	3,932		3	1	17	34	125	232	428	580	634	626	507	327	200	116	45	35	12	6	2	1	1
35	2,575				2	9	15	79	174	262	364	407	387	355	222	146	71	41	24	9	2	2	4
36	1,355		2			2	3	18	30	83	99	201	197	203	167	126	99	52	28	18	11	10	6
37	547						2		7	13	26	47	55	58	83	73	65	42	27	25	9	6	9
38	215				3		3	1	1	1	5	10	11	15	18	25	24	28	18	18	13	10	11
39	92			1		3	2		1		1	2	1	3	5	9	6	11	11	7	8	9	12
40	68			2		1	1	1		2	1	1			1	1	2	4	2	4	4	1	40
Total	21,254	6	36	132	470	1,008	1,594	2,315	2,761	2,753	2,520	2,276	1,721	1,245	849	578	351	231	136	90	50	48	84

Number of cases: 21,254. Weight: Mean, 140.28 pounds; standard deviation, 16.10±0.05 pound. Chest circumference (expiration): Mean, 33.20 inches; standard deviation, 1.87±0.01 inch. Correlation: 0.6532±0.0027.

TABLE XLIII.—*Correlation between height and weight: Group 13, Indian, sparsely settled, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	29		2		1		3	3	5	4	3	1	1	1	1	2	2						
60	11					1	1		2	1		1	1	1	3								
61	40		1	2	6	7	6	4	5	1		2		1			1				1	2	1
62	92		1	4	14	21	9	13	12	4	2	5	2	1	1	1	1			1			
63	210	1	2	7	32	23	40	28	22	18	20	5	3	3	3	1	1		1				
64	396		5	7	28	60	82	50	47	48	22	14	5	10	3	4	3	5	3				
65	712		8	11	41	83	99	115	114	75	59	42	20	20	11	6	4			2		1	1
66	1,103		7	7	31	71	146	167	169	167	113	71	43	42	27	12	11	6	4	2		3	4
67	1,427		2	8	17	71	144	192	217	209	212	133	83	49	33	14	14	8	7	5	5	2	2
68	1,629		4	4	11	46	100	158	260	255	231	192	112	87	67	36	33	12	5	4	5	3	4
69	1,411		4	1	4	13	55	109	153	222	227	194	149	83	65	55	32	12	9	7	4	7	6
70	1,225		4		1	7	27	46	119	160	189	184	154	122	71	57	33	17	9	9	4	1	11
71	845		1	1		1	10	23	61	87	100	113	109	95	77	58	41	23	11	10	8	8	8
72	482		2			1	2	4	14	34	60	67	67	59	56	39	33	14	11	3	4	3	9
73	239						1	1	4	14	22	27	22	35	31	30	18	15	8	5	2	1	3
74	104								2	2	5	7	17	15	16	10	6	5	5	2	2	4	6
75	52						1			3	2	5	8	8	7	5	3		3	2	2	1	2
76	16											1	1		2	4		3	1		1	1	2
77	3									1						1					1		
78	7									2		1	1				1	1					1
79	5						1				1		1		1		1						
Total	10,038	1	43	52	186	405	727	913	1,206	1,307	1,268	1,065	799	632	475	335	238	121	77	52	39	37	60

Number of cases: 10,038. Height: Mean, 68.12 inches; standard deviation, 2.61±0.012 inch. Weight: Mean, 141.89 pounds; standard deviation, 16.91±0.080 pound.

TABLE XLIV.—*Correlation between height and chest circumference (expiration): Group 13, Indian, sparsely settled, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	29	1	2	3	8	11	4					
60	11	1	1	1	4	2	1		1			
61	40	5	1	10	9	5	8		1	1		
62	92	3	10	18	22	13	16	4	4	1	1	
63	210	9	18	36	63	39	28	10	5	1		1
64	396	24	37	77	95	66	32	45	13	3	4	
65	711	22	50	153	156	151	89	49	27	8	3	3
66	1,103	28	80	155	254	244	173	86	42	19	7	15
67	1,427	35	73	207	306	317	246	133	60	24	16	10
68	1,629	21	73	206	334	357	306	198	82	21	18	13
69	1,411	11	53	157	269	318	273	178	94	26	21	11
70	1,224	7	38	126	207	259	264	174	97	27	17	8
71	845	7	18	56	134	196	158	129	81	35	21	10
72	482	3	8	36	69	89	111	82	51	18	11	4
73	239	1	4	13	26	43	71	41	28	6	5	1
74	104		1	4	10	19	27	12	17	7	3	4
75	51		1	2	6	8	14	8	9	2	1	
76	16				3	4	5	1	1	2		
77	3				2				1			
78	7				2	2	1		1		1	
79	5					1	2	1	1			
Total	10,035	178	468	1,260	1,979	2,144	1,829	1,151	616	201	129	80

Number of cases: 10,035. Height: Mean, 68.12 inches; standard deviation, 2.61±0.012 inch. Chest circumference (expiration): Mean, 33.13 inches; standard deviation, 1.87±0.009 inch.

TABLE XLV.—*Correlation between weight and chest circumference (expiration): Group 13, Indian, sparsely settled, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	178		12	19	37	36	28	16	13	9	1	1		1	1	1					1	2	
30	469		4	9	51	81	105	77	56	55	11	11	4	2	1	2							
31	1,260		11	10	55	139	207	243	198	177	97	69	23	14	5	6	2	2				1	1
32	1,982	1	16	7	27	87	203	312	385	337	268	157	95	32	28	11	10	2	1	1	1		1
33	2,146			5	14	51	141	161	324	377	365	297	189	103	59	36	22	1			1		
34	1,828				1	9	29	86	176	232	317	278	239	174	131	79	46	17	8	1	4		1
35	1,150					1	9	15	43	88	157	178	157	173	132	88	60	27	13	6	1		2
36	615				1		3	3	10	23	43	60	78	97	88	67	55	34	23	11	8	6	5
37	201								1	2	5	12	11	31	23	24	21	21	11	16	10	6	7
38	130						1	1		2	2	2	2	5	6	15	18	11	15	15	11	12	12
39	37					1		1	1	2	1				1	4	3	4	2	4	1	5	7
40	42			2						2	1					2	1	2	1	1	1	5	24
Total	10,038	1	43	52	186	405	726	915	1,207	1,306	1,268	1,065	798	632	475	335	238	121	74	55	39	37	60

Number of cases: 10,038. Weight: Mean, 141.89 pounds; standard deviation, 16.91±0.08 pound. Chest circumference (expiration): Mean, 33.13 inches; standard deviation, 1.89±0.01 inch. Correlation: 0.6775±0.0036.

TABLE XLVI.—*Correlation between height and weight: Group 14, Mexican, sparsely settled, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																				
		95–99.	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	30			2	4	2	1	4	3	3	3	1	3		2	1			1				
60	17		1	2		5		1		2	1	3	2										
61	48		4	5	6	5	7	7	5	2	2	3	1						1				
62	110		6	10	14	18	9	14	13	8	3	7	1	2	1	1				1		1	1
63	241		6	17	28	39	43	29	29	23	6	4	4	3	6	2	1		1				
64	456		7	14	40	63	78	62	60	50	29	21	5	6	5	3	3	4	3	1		2	
65	799		3	15	71	78	111	124	103	93	70	40	30	17	18	10	5	4	1	1	3	1	1
66	1,128		1	6	28	83	134	184	168	156	125	84	57	41	15	21	12	4	5	1	1	1	1
67	1,473		4	13	32	81	144	183	235	225	165	154	85	57	32	23	14	11	10	1	1	2	1
68	1,647			8	16	38	97	164	255	215	245	195	132	95	67	38	26	17	17	8	3	4	7
69	1,402			1	5	21	48	84	131	185	208	188	172	109	93	54	40	27	9	5	8	2	12
70	1,413			2	6	22	47	88	155	189	209	181	171	121	81	55	32	16	12	12	6	2	6
71	889		1	2	3	5	11	24	53	89	107	110	122	94	101	51	37	28	24	10	7	7	3
72	619				2	4	6	7	28	36	73	71	90	79	65	53	29	27	19	12	8	4	6
73	293				1		1	1	5	12	29	21	52	33	37	41	24	14	7	4	5	2	[illegible]
74	119				1			1		5	10	12	11	18	21	8	9	7	3	4	4	1	4
75	61									2	3	1	2	6	5	10	7	7	4	4	6		4
76	22						1		1			1	1	4	2	2	4	1	2	1	1		1
77	2							1								1							
78	7									1			2		1	1	2						
79	3								1						1							1	
Total	10,779		33	97	257	464	738	978	1,245	1,296	1,288	1,097	943	685	553	375	245	167	119	65	53	30	51

Number of cases: 10,779. Height: Mean, 68.16 inches; standard deviation, 2.69±0.012 inch. Weight: Mean, 142.14 pounds; standard deviation, 17.36±0.080 pound.

TABLE XLVII.—*Correlation between height and chest circumference (expiration): Group 14, Mexican, sparsely settled, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	28		1	3	6	9	3	3	1	1	1	
60	17			4	6	2	3	2				
61	48	6	5	5	14	12	1	1	2	1		1
62	112	10	14	17	35	16	8	8	3			1
63	246	11	25	44	59	54	28	11	6	5	1	2
64	468	19	65	93	89	88	58	27	14	7	5	3
65	816	33	61	144	189	159	107	60	40	14	4	5
66	1,154	20	85	174	241	257	186	100	45	25	13	8
67	1,511	46	107	193	309	327	227	164	81	32	13	12
68	1,695	23	77	180	351	374	281	223	99	44	27	16
69	1,568	23	59	150	267	380	290	212	109	42	15	21
70	1,326	17	46	128	211	304	254	187	93	51	22	13
71	916	8	17	70	132	203	188	125	89	44	21	19
72	637	3	16	37	86	99	139	111	70	50	16	10
73	306	2	5	23	22	55	81	52	37	12	11	6
74	121		2	2	7	20	34	21	16	12	5	2
75	61		1	1	2	9	16	13	11	3	4	1
76	22			2	2	3	4	5	1	4		1
77	2			1				1				
78	7				1	1	3	1				1
79	3					1			1		1	
Total	11,064	221	586	1,271	2,029	2,373	1,911	1,327	718	347	159	122

Number of cases: 11,064. Height: Mean, 68.16 inches; standard deviation, 2.68±0.12 inch Chest circumference (expiration): Mean, 33.22 inches; standard deviation, 1.97±0.080 inch.

TABLE XLVIII.—*Correlation between weight and chest circumference (expiration): Group 14, Mexican, sparsely settled, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	220	......	12	21	37	47	38	24	18	10	5	2	2	......	......	......	1	......	......	1	......	1	1
30	576	......	13	26	66	103	120	88	73	45	18	13	7	1	1	1	......	......	......	......	......	1	......
31	1,242	......	6	29	78	131	207	241	212	136	105	37	33	9	7	8	1	2	......	......	......	......	......
32	1,989	......	3	9	33	110	198	296	379	344	282	173	88	36	21	8	2	5	1	......	1	......	......
33	2,308	......	......	5	26	46	116	211	313	395	380	305	233	129	83	45	17	1	1	1	1	......	......
34	1,863	......	1	2	6	13	44	80	171	216	284	312	245	186	143	87	34	26	9	1	3	......	......
35	1,275	......	1	......	......	3	9	25	61	116	157	165	209	174	129	97	53	29	28	11	4	2	2
36	695	......	......	1	......	5	4	10	13	25	45	65	86	96	102	67	59	55	28	17	11	2	4
37	343	......	1	......	......	......	......	1	5	4	6	19	30	39	55	40	47	24	17	14	15	9	17
38	157	......	......	......	......	......	......	1	......	2	1	5	9	9	14	14	23	19	22	15	6	6	11
39	65	......	......	......	......	......	......	1	......	......	2	2	2	1	......	5	5	4	12	3	5	3	20
40	52	......	......	......	......	3	4	1	2	......	1	......	2	......	1	......	3	1	2	1	7	6	18
Total	10,785	......	37	93	246	461	740	979	1,247	1,293	1,286	1,098	946	680	556	372	245	166	120	64	53	30	73

Number of cases: 10,785. Weight: Mean, 142.28 pounds; standard deviation, 17.54 ± 0.08 pound. Chest circumference (expiration): Mean, 33.22 inches; standard deviation, 1.99 ± 0.01 inch. Correlation: 0.6859 ± 0.0034.

TABLE XLIX.—*Correlation between height and weight: Group 15, native whites of Scotch origin, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	42	......	1	......	3	2	4	3	8	11	4	2	1	2	......	1	......	......	......	......	......	......	......
60	41	......	2	3	5	5	3	2	2	5	4	1	2	3	3	1	......	......	......	......	......	......	......
61	69	1	1	4	8	9	14	8	8	7	1	3	1	3	......	......	......	......	......	......	......	1	......
62	138	......	1	9	24	19	25	17	16	12	7	2	2	1	......	......	......	......	1	......	......	2	......
63	295	......	3	18	36	53	62	43	33	18	10	11	2	4	......	......	1	......	......	......	......	1	......
64	587	......	7	20	57	95	98	89	88	48	28	26	6	7	7	3	1	2	1	......	1	3	......
65	1,019	......	6	23	54	150	157	155	139	121	92	54	29	20	4	8	3	......	......	......	1	1	2
66	1,495	......	1	14	54	114	214	247	235	207	148	105	44	42	28	15	10	10	2	2	1	2	......
67	1,947	......	1	15	36	129	195	278	302	284	215	177	101	71	53	32	20	17	6	3	4	2	6
68	2,151	......	1	3	25	58	151	272	329	327	307	229	172	88	74	40	32	15	7	9	3	4	5
69	1,982	......	......	3	9	36	107	189	261	307	271	252	174	127	83	56	34	19	18	12	6	4	14
70	1,552	......	......	2	5	16	38	87	160	189	198	240	195	124	106	70	34	24	24	14	7	6	13
71	1,045	......	......	......	1	5	13	36	89	133	142	142	138	113	80	54	27	24	15	14	5	4	10
72	626	......	......	......	1	......	3	16	35	60	64	83	91	84	54	47	30	18	11	14	5	3	7
73	299	......	......	2	......	......	......	7	7	20	24	48	47	36	30	27	13	12	10	5	1	4	6
74	136	......	......	......	......	......	1	......	3	8	5	15	20	18	14	16	13	7	8	2	3	2	1
75	53	......	......	......	......	......	......	......	1	1	2	4	7	6	4	5	5	7	4	5	......	2	......
76	27	......	......	......	......	......	......	1	1	......	1	2	......	2	3	7	3	4	......	1	......	1	1
77	7	......	......	......	......	......	......	......	......	......	......	......	......	......	......	2	2	1	......	......	2	......	......
78	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1	......	......	......	......	......	......
79	10	......	......	......	......	......	1	......	1	......	2	......	1	......	3	......	......	1	......	......	......	1	......
Total	13,522	1	24	116	318	691	1,086	1,450	1,718	1,758	1,525	1,396	1,033	751	546	384	229	161	107	81	39	43	65

Number of cases: 13,522. Height; Mean, 68 inches; standard deviation, 2.64±0.011 inch. Weight: Mean, 140.26 pounds; standard deviation, 16.77±0.069 pound.

TABLE L.—*Correlation between height and chest circumference (expiration): Group 15, native whites of Scotch origin, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	27	2	4	2	7	4	5	1	2			
60	42	3	4	9	11	7	7	1				
61	69	7	11	16	6	18	8	3				
62	140	13	15	37	27	28	14	5	1			
63	294	25	44	67	60	47	32	10	7	1		1
64	584	37	73	122	153	93	53	32	12	4	3	2
65	1,016	50	112	200	238	198	116	60	24	10	4	4
66	1,485	35	116	256	362	337	201	104	48	14	8	4
67	1,943	50	144	307	446	409	306	154	82	20	12	13
68	2,144	36	122	291	491	453	379	196	111	37	17	11
69	1,975	19	94	232	406	442	345	220	122	49	23	23
70	1,550	18	43	149	253	379	310	195	116	55	17	15
71	1,042	5	28	102	172	229	200	156	93	27	17	13
72	624	3	11	43	109	141	130	88	50	26	10	13
73	298		2	15	38	74	56	49	34	14	9	7
74	136		3	5	21	22	30	22	17	7	5	4
75	52			1	6	11	10	10	7	3	2	2
76	27			1	2	7	7	4	3	1	1	1
77	8					1	2	2	1	1	1	
78	1							1				
79	12				3	4	2	2		1		
Total	13,469	303	826	1,855	2,811	2,904	2,213	1,315	730	270	129	113

Number of cases; 13,469. Height: Mean, 68.01 inches; standard deviation, 2.63±0.011 inch. Chest circumference (expiration): Mean, 32.94 inches; standard deviation, 1.89±0.008 inch.

TABLE LI.—*Correlation between weight and chest circumference (expiration): Group 15, native whites of Scotch origin, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	298	3	13	45	56	66	48	44	11	6		1	1			1		1				2	
30	827		5	33	103	157	177	160	84	60	24	16	4	3		1							
31	1,855	1	4	18	79	231	349	374	301	236	129	74	34	14	5	3	1	1		1			
32	2,813		1	10	58	165	293	435	576	487	336	217	125	64	29	10	5	1				1	
33	2,909		1	4	14	49	159	299	440	515	467	423	251	156	70	34	11	9	3		1	2	1
34	2,216			1	5	12	38	87	212	305	343	369	306	219	152	85	49	16	9	4	3		1
35	1,315			1	2	3	8	25	58	113	158	185	199	168	146	110	57	40	23	10	4	2	1
36	730			1	1	3	3	8	18	22	55	82	82	92	106	95	59	41	29	23	6	3	3
37	270			1		1		2	2	3	8	18	21	23	36	25	37	32	20	20	7	6	8
38	130						2	2	1	1		2		9	4	15	7	11	15	18	13	13	17
39	53			1	1		1		2			1		2		1	5	5	7	2	4	4	17
40	57											1	1			1	1	1	2	2	1	5	42
Total	13,473	4	24	115	319	687	1,078	1,436	1,705	1,748	1,520	1,389	1,024	750	548	381	232	158	108	80	39	38	90

Number of cases: 13,473. Weight: Mean, 140.36 pounds; standard deviation, 16.96±0.07 pound. Chest circumference (expiration): Mean, 32.95 inches; standard deviation, 1.90±0.01 inch. Correlation: 0.7069±0.0029.

TABLE LII.—*Correlation between height and weight: Group 16, Russian, 10 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	51		3	1	3	5	2	8	2	4	3	6	4	5	2	3							
60	55		3	1	11	9	8	3	4	7	1	3	3	1					1				
61	136		2	13	19	32	14	23	9	13	5	1	1	2		1			1				
62	253		9	12	33	33	40	40	34	18	17	7	5	1	2		2						
63	527		10	18	43	74	78	78	71	52	38	33	12	8	4	3	2	1		1		1	
64	863		8	18	41	87	110	133	135	99	88	47	36	27	13	10	7	4					
65	1,313		1	17	56	94	146	158	220	192	142	106	66	39	26	18	4	12	7	7		1	1
66	1,769		3	5	44	106	154	212	262	239	232	172	127	84	52	38	16	9	7	1	6		
67	1,813			7	13	54	118	189	225	273	237	214	153	128	78	53	25	17	10	6	6	5	2
68	1,784			1	6	31	62	124	212	229	256	224	201	145	98	84	41	26	17	9	12	1	5
69	1,311			1		8	43	77	122	147	183	175	145	133	98	65	42	21	18	11	9	6	7
70	986				2	4	7	33	55	99	120	139	141	109	92	70	36	34	19	8	5	4	9
71	632					1	7	10	35	33	58	91	92	85	68	40	36	20	19	12	9	8	8
72	317							1	8	14	31	29	48	42	46	23	30	17	12	9	4	2	1
73	157							1	5	3	13	13	12	14	26	16	20	8	13	1	6	2	4
74	63									1	1	1	8	2	15	9	7	7	3		4	1	4
75	25											3	2	1	2	2	4	3	1	2	3	1	1
76	6													2				2		1		1	
77	8																1	2	2	1		1	1
78	1																1						
79	6							1				1	1	1		1					1		
Total	12,076		39	94	271	538	789	1,091	1,399	1,423	1,425	1,265	1,057	829	622	436	274	183	130	69	65	34	43

Number of cases: 12,076. Height: Mean, 67.11 inches; standard deviation, 2.68±0.012 inch. Weight: Mean, 142.30 pounds; standard deviation, 17.21±0.075 pound.

TABLE LIII.—*Correlation between height and chest circumference (expiration): Group 16, Russian, 10 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	58	4	4	8	10	9	11	6	2	2	1	1
60	54	5	7	7	10	11	7	6	1			
61	134	8	16	23	30	23	11	12	8	1	1	1
62	252	10	22	44	64	52	36	14	9		1	
63	525	27	43	73	107	105	76	50	28	10	4	2
64	857	28	61	119	168	154	152	95	47	22	5	6
65	1,310	41	86	192	231	264	228	139	79	24	15	11
66	1,768	48	91	214	334	360	304	214	119	49	21	14
67	1,812	24	75	209	324	371	309	245	144	60	29	22
68	1,780	14	59	186	318	364	313	243	154	71	34	24
69	1,310	11	33	108	200	260	281	193	124	53	30	17
70	985	2	15	68	137	200	225	143	105	53	25	12
71	630	4	12	36	89	116	143	85	69	43	16	17
72	316	1	2	11	36	63	67	62	40	14	13	7
73	157	1		6	10	22	31	38	28	10	4	7
74	63		1		3	10	14	11	9	6	3	6
75	25				3	4	4	7	4		2	1
76	6					1	1		2	2		
77	8			1				4	1	1	1	
78	1						1					
79	6				1	1	1	3				
Total	12,057	228	527	1,305	2,075	2,390	2,215	1,570	973	421	205	148

Number of cases: 12,057. Height: Mean, 67.11 inches; standard deviation, 2.69±0.012 inch. Chest circumference (expiration): Mean, 33.39 inches; standard deviation, 2±0.009 inch.

TABLE LIV.—*Correlation between weight and chest circumference (expiration): Group 16, Russian, 10 per cent plus, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	226		15	28	46	54	29	22	15	7	2	1	1	2		3						1	
30	526		10	31	66	102	101	94	60	34	18	4	1	1			3			1			
31	1,309		6	24	86	158	214	260	236	158	85	39	23	9	2	1	1	4	1	2			
32	2,076		2	8	55	111	235	342	405	339	265	152	96	30	16	15	1	2	1	1			
33	2,393		3	2	9	72	132	226	345	388	397	329	220	138	75	33	10	4			2	2	
34	2,216				3	22	45	105	238	273	347	373	305	209	147	73	48	12	12	2	1		1
35	1,570				1	10	16	28	64	160	214	230	227	224	151	117	53	39	19	10	5	2	
36	974				3	2	7	9	23	46	77	100	129	156	131	104	78	41	31	14	11	10	2
37	422		1				1	2	8	11	11	27	30	42	61	56	47	46	30	16	18	8	7
38	205				2	1			2	1	3	7	14	11	24	24	24	26	16	18	13	7	12
39	92					2	1	1		1	2	3	4	6	11	8	6	7	13	5	13	3	6
40	55					1	1		2	2	2		1		3	2	3	1	2	5	2	1	27
Total	12,064		37	93	271	535	782	1,089	1,398	1,420	1,423	1,265	1,057	828	621	436	274	182	125	74	65	34	55

Number of cases: 12,064. Weight: Mean, 142.39 pounds; standard deviation, 17.30 ± 0.08 pound. Chest circumference (expiration): Mean, 33.39 inches; standard deviation, 2.01 ± 0.01 inch. Correlation: 0.6916 ± 0.0032.

TABLE LV.—*Correlation between height and weight: Group 17, Scandinavian, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	171	2		3	5	8	13	10	17	14	23	18	12	13	11	11	6			2		1	2
60	95		4	5	6	19	6	14	5	5	6	5	4	5	3	2	2		1	2			1
61	236		5	14	29	37	30	33	23	10	13	10	12	7	2	5	1	1	3			1	
62	525	1	3	16	68	72	79	93	64	41	35	15	14	10	5	5	2		1		1		
63	1,174		8	30	84	157	177	199	163	127	74	59	33	26	15	10	5	1	2	1		3	
64	2,250		4	24	85	193	339	374	382	310	208	131	86	40	34	17	8	7	4		1	3	
65	3,892	1	5	33	106	262	410	563	611	606	439	341	207	120	71	42	33	13	8	2	4	7	8
66	5,941		1	23	86	220	472	726	922	948	824	623	437	261	135	105	61	37	22	15	11	8	4
67	7,441		2	7	39	174	390	678	945	1,138	1,119	907	688	501	348	197	107	76	43	33	17	14	18
68	8,163		5	7	23	64	255	466	831	1,137	1,217	1,191	978	690	471	354	184	109	60	52	25	19	25
69	7,279		2	1	3	35	145	277	534	832	1,015	1,062	946	772	582	410	232	171	99	60	29	30	42
70	5,755		2		5	14	49	126	240	583	689	802	804	677	569	444	286	151	115	73	43	34	49
71	3,809		1	2	1	6	17	41	120	202	369	473	573	508	463	350	266	147	99	61	33	26	51
72	2,254		1	1		3	4	19	44	89	147	228	276	310	309	246	190	134	92	53	43	24	41
73	1,138		1					5	8	18	56	94	138	139	147	141	131	82	68	35	23	21	31
74	526				1		1	1	3	8	19	18	43	48	80	81	56	45	37	25	27	8	25
75	217								3	3	2	12	17	17	26	26	24	13	25	23	9	8	9
76	70								1			6	1	4	8	9	8	11	6	5	2	2	7
77	30						1			2	1	1	2		4	3	5	3	4	1	1		2
78	19									1	1	5			1	1		4		2	1	1	2
79	24								1	1	5	2			2	2	1	1	2	2	1	1	3
Total	51,009	4	44	166	541	1,264	2,388	3,625	4,917	6,075	6,262	6,003	5,271	4,148	3,286	2,461	1,608	1,006	691	447	271	211	320

Number of cases: 51,009. Height: Mean, 67.96 inches; standard deviation, 2.63±0.006 inch. Weight: Mean, 146.13 pounds; standard deviation, 16.99±0.036 pound.

TABLE LVI.—*Correlation between height and chest circumference (expiration): Group 17, Scandinavian, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	172	3	8	14	30	33	28	23	17	10	5	1
60	94	3	8	17	17	15	13	12	5	1	1	2
61	236	15	24	35	46	45	36	15	10	6	3	1
62	524	18	42	97	116	98	92	40	14	5	1	1
63	1,161	26	93	192	244	249	182	88	48	24	10	5
64	2,249	57	155	325	467	482	380	223	98	33	18	11
65	3,890	86	216	486	809	856	668	418	202	87	34	28
66	5,937	93	271	695	1,155	1,296	1,051	723	379	171	64	39
67	7,430	72	295	713	1,288	1,537	1,516	1,043	528	275	98	65
68	8,161	53	215	610	1,314	1,747	1,718	1,208	715	347	144	90
69	7,274	34	184	469	1,011	1,472	1,542	1,194	783	348	143	94
70	5,744	27	104	303	706	1,094	1,274	1,016	645	317	159	99
71	3,800	7	45	193	404	710	840	711	453	244	114	79
72	2,254	3	28	85	230	366	463	440	311	182	97	49
73	1,140	1	7	34	91	193	244	225	166	111	41	27
74	525	2	1	9	38	67	110	98	94	54	34	18
75	215	1	1	5	16	21	39	37	52	18	15	10
76	74	...	1	2	2	4	15	19	13	14	...	4
77	30	...	...	1	...	6	5	6	7	4	...	1
78	19	...	...	...	1	3	3	6	...	5	...	1
79	22	...	1	1	2	2	2	3	4	2	3	2
Total	50,961	501	1,699	4,286	7,987	10,296	10,221	7,548	4,544	2,258	984	627

Number of cases: 50,961. Height: Mean, 67.96 inches; standard deviation, 2.63 ± 0.006 inch. Chest circumference (expiration): Mean, 33.65 inches; standard deviation, 1.94 ± 0.004 inch.

TABLE LVII.—*Correlation between weight and chest circumference (expiration): Group 17. Scandinavian, 10 per cent, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	498	2	15	52	87	96	93	61	38	20	15	6	2	2	2	3	1	2	1	......	......	......	......
30	1,699	1	9	46	159	288	352	317	230	150	65	42	12	7	3	5	6	1	1	1	1	3	......
31	4,285	......	5	37	174	382	663	821	803	616	355	213	108	55	25	15	4	4	3	1	1	......	......
32	7,987	1	2	16	72	302	716	1,099	1,395	1,500	1,224	775	464	223	95	63	18	12	5	3	1	......	1
33	10,281	......	6	4	19	125	367	802	1,373	1,768	1,885	1,483	1,081	665	386	189	71	33	13	2	5	4	......
34	10,232	......	2	3	10	41	131	382	735	1,253	1,538	1,789	1,553	1,116	760	509	238	97	51	13	6	4	1
35	7,559	......	......	1	1	13	39	106	274	533	802	1,082	1,235	1,093	924	642	395	214	115	51	21	13	5
36	4,545	......	2	2	2	3	10	30	75	139	267	449	570	627	651	590	452	278	179	116	49	37	17
37	2,255	......	1	3	3	7	1	2	9	39	70	129	216	261	322	301	256	213	156	101	75	47	43
38	986	......	......	1	4	2	3	1	9	7	9	25	44	50	89	108	134	101	118	99	62	41	79
39	379	......	2	1	......	......	......	......	2	1	4	6	5	15	23	26	34	33	34	40	42	41	70
40	247	......	1	......	3	2	6	1	3	1	5	2	1	11	4	9	9	13	13	12	12	20	119
Total	50,953	4	45	166	534	1,261	2,381	3,622	4,946	6,027	6,239	6,001	5,291	4,125	3,284	2,460	1,618	1,001	689	439	275	210	335

Number of cases: 50,953. Weight: Mean, 146.15 pounds; standard deviation, 17.01±0.036 pound. Chest circumference (expiration): Mean, 33.65 inches; standard deviation, 1.95±0.004 inch.

TABLE LVIII.—*Correlation between height and weight: Group 18, Finn, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	15	......	......	1	1	1	......	......	2	2	1	......	1	4	......	2	......	......	......	......	......	......	......
60	23	......	1	......	1	7	3	3	3	......	1	1	1	......	1	......	......	......	......	......	......	......	1
61	46	......	......	3	6	8	7	7	4	......	3	4	2	......	......	1	......	......	1	......	......	......	......
62	103	......	......	5	7	13	12	21	14	10	9	3	3	3	1	1	1	......	......	......	......	......	......
63	216	......	......	3	10	25	27	47	29	26	15	11	9	2	5	3	2	1	......	......	......	1	......
64	363	......	1	5	9	31	48	60	60	58	33	25	12	8	8	1	......	2	2	......	......	......	......
65	567	......	......	4	8	25	45	78	84	97	68	68	29	25	16	9	6	1	3	......	......	......	1
66	759	......	......	2	6	15	56	77	99	129	119	100	69	33	13	18	6	7	3	3	1	2	1
67	874	......	......	2	2	17	41	77	109	124	120	90	89	80	48	37	16	8	5	4	2	1	2
68	889	......	......	......	......	1	24	45	87	116	126	141	95	81	56	49	17	18	16	9	4	1	3
69	768	......	......	......	......	1	16	25	48	86	104	110	102	81	53	57	33	27	5	9	3	3	5
70	547	......	......	......	......	......	2	6	25	54	63	71	79	67	53	42	38	15	17	6	5	1	3
71	361	......	......	1	......	......	1	5	8	19	31	38	65	46	50	29	26	16	10	3	3	4	6
72	180	......	......	......	......	1	1	1	6	2	11	16	16	28	34	21	11	12	3	6	7	1	3
73	83	......	......	......	......	......	......	1	......	2	4	6	9	6	13	6	12	8	4	3	3	3	3
74	41	......	......	......	......	......	......	......	......	1	......	1	1	4	10	5	......	8	2	3	2	......	4
75	23	......	......	......	......	......	......	......	......	1	......	......	2	3	3	2	......	2	3	3	3	......	1
76	3	......	......	......	......	......	......	......	......	......	......	......	......	......	1	2	......	......	......	......	......	......	......
77	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1
78	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1	......
79	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1	......	......	......	......	......	......	......
Total	5,864	......	2	26	50	145	283	453	578	727	708	685	584	471	365	286	168	125	74	49	33	18	34

Number of cases: 5,864. Height: Mean, 67.43 inches; standard deviation, 2.65 ± 0.017 inch. Weight: Mean, 145.76 pounds; standard deviation, 16.86 ± 0.105 pound.

TABLE LIX.—*Correlation between height and chest circumference (expiration): Group 18, Finn, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	15			1	4	2	1	4	1	2		
60	22	1	2	5	3	3	4	1	2			1
61	46	1	3	7	12	8	9	2	1	3		
62	102	5	3	13	26	18	23	7	4	1	1	1
63	216	3	17	22	36	53	38	22	12	9	3	1
64	363	9	16	40	76	78	80	34	19	5	5	1
65	565	9	20	51	107	119	98	70	57	21	8	5
66	759	8	26	72	138	155	134	110	67	31	12	6
67	873	5	30	66	152	155	179	125	88	47	15	11
68	886	2	18	50	136	185	179	115	89	65	29	18
69	767	2	15	39	85	165	152	126	102	44	27	10
70	547	2	7	28	79	88	93	110	82	27	19	12
71	361	1	2	13	35	76	71	71	40	33	12	7
72	180	1	3	9	16	26	32	39	23	14	11	6
73	83		1	3	8	9	17	21	9	12	1	2
74	41			1	1	5	7	8	12	3	3	1
75	23			1	1		4	3	6	2	3	3
76	3						1	1		1		
77	1									1		
78	1						1					
79	1									1		
Total	5,855	49	163	421	915	1,145	1,123	869	614	322	149	85

Number of cases: 5,855. Height: Mean, 67.43 inches; standard deviation, 2.65±0.017 inch. Chest circumference (expiration): Mean, 33.82 inches; standard deviation, 1.98±0.012 inch.

TABLE LX.—*Correlation between weight and chest circumference (expiration): Group 18, Finn, 10 per cent, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	49			7	9	6	7	12	5	1			1					1					
30	163		1	5	9	30	35	26	24	17	5	5	2	1		1		1				1	
31	421		1	8	19	40	64	97	74	58	27	14	9	3	1	4		1	1				
32	915			3	9	45	85	141	164	161	150	73	46	21	8	4	4	1					
33	1,145				2	15	53	88	166	235	191	153	114	62	40	12	8	4	1			1	
34	1,125				1	7	24	60	87	145	183	196	155	117	67	39	24	12	5	2		1	
35	867			1		3	13	21	41	71	78	124	139	121	100	82	39	19	6	7	2		
36	614							6	13	25	46	80	78	87	77	71	49	35	23	14	9		1
37	322									8	18	34	28	42	51	49	25	28	15	6	6	6	6
38	149				1				2	4	5	6	11	9	13	19	15	16	17	13	10	2	6
39	58			1					1		3		1	4	6	3	5	4	2	4	6	7	11
40	27										1			2		3		3	3	2	1	1	11
41																							
42																							
Total	5,855		2	25	50	146	281	451	577	725	707	685	584	469	363	287	169	125	73	48	34	19	35

Number of cases: 5,855. Weight: Mean, 145.80 pounds, standard deviation, 16.88±0.11 pound. Chest circumference (expiration): Mean, 33.82 inches; standard deviation, 1.99±0.01 inch. Correlation: 0.6727±0.0048.

TABLE LXI.—*Correlation between height and weight: Group 19, French-Canadian, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	101	1	2	3	6	5	7	13	15	11	9	3	9	7	5	1	1	1	......	......	1	1	......
60	112	......	4	10	15	23	17	6	13	7	7	......	2	1	3	1	1	......	......	......	......	2	......
61	376	1	18	30	71	72	52	39	36	22	8	10	9	2	1	......	1	1	......	......	......	3	......
62	845	3	17	69	131	151	142	110	81	49	41	18	10	7	6	3	1	3	1	......	1	1	......
63	1,532	......	21	77	199	267	242	212	170	124	82	51	22	20	23	8	4	3	2	2	1	2	......
64	2,321	......	23	56	196	355	362	363	308	240	126	100	84	41	19	19	10	6	7	5	1	......	......
65	3,210	......	13	44	176	338	478	510	451	367	264	206	131	65	60	39	25	12	11	9	5	3	3
66	3,840	......	13	22	143	315	476	537	574	484	373	303	192	135	96	56	44	26	16	10	12	9	4
67	3,833	......	11	15	63	187	342	487	568	593	444	341	271	189	98	80	54	30	19	14	12	8	7
68	3,478	......	6	13	24	120	256	381	451	482	440	393	286	185	137	112	59	53	28	23	16	8	5
69	2,581	......	......	2	11	32	90	222	277	354	340	324	269	221	131	97	67	58	28	18	16	11	13
70	1,732	......	3	5	5	15	43	82	145	215	248	233	214	150	98	89	52	47	31	17	17	14	9
71	1,036	......	......	......	1	6	16	30	76	89	146	132	116	103	82	72	50	41	31	13	9	9	14
72	508	......	2	1	3	......	3	9	13	32	58	61	65	64	57	39	25	27	15	11	9	11	3
73	217	......	......	2	......	1	......	2	2	11	19	31	27	27	23	20	20	8	5	5	6	1	7
74	76	......	......	......	......	......	1	......	1	3	7	5	10	7	7	14	7	2	5	2	2	3	......
75	31	......	......	......	......	......	......	......	......	1	3	2	3	9	3	1	3	3	......	2	......	......	1
76	16	......	......	......	......	1	......	......	......	......	1	......	3	5	1	......	1	2	......	......	1	1	......
77	4	......	......	......	......	......	......	......	......	......	......	1	......	......	1	......	2	......	......	......	......	......	......
78	6	......	......	......	......	......	......	......	......	......	2	1	......	1	......	......	......	......	1	......	......	......	1
79	7	......	......	......	......	......	1	1	......	1	......	......	1	......	1	1	......	......	1	......	......	......	......
Total	25,862	5	133	349	1,044	1,888	2,528	3,004	3,181	3,085	2,618	2,215	1,724	1,239	852	652	427	323	201	131	109	87	67

Number of cases: 25,862. Height: Mean, 66.67 inches; standard deviation, 2.65±0.008 inch. Weight: Mean, 137.88 pounds; standard deviation, 17.38±0.052 po und.

TABLE LXII.—*Correlation between height and chest circumference (expiration): Group 19, French-Canadian, 10 per cent, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	103	4	7	8	21	18	19	10	7	5	2	2
60	111	5	14	16	22	25	15	4	6	1	2	1
61	375	22	49	76	83	65	42	25	9	1	2	1
62	839	40	95	159	190	162	102	50	25	7	3	6
63	1,526	63	166	268	312	311	198	117	51	17	13	10
64	2,303	93	185	388	525	443	321	184	95	36	20	13
65	3,203	111	235	474	714	611	458	294	157	77	42	30
66	3,280	101	274	531	790	753	595	362	206	112	50	46
67	3,824	79	214	450	763	759	686	412	238	115	61	47
68	3,475	65	177	396	613	724	578	443	253	103	62	61
69	2,575	31	74	273	440	506	501	342	215	95	40	58
70	1,720	15	65	162	284	357	302	226	152	71	41	45
71	1,037	11	26	77	157	175	198	170	103	57	29	34
72	506	4	11	41	61	92	99	82	56	28	13	19
73	216	1	2	14	22	40	47	39	21	15	10	5
74	76		2	3	13	11	15	14	6	9	3	
75	30			1	3	9	6	4	4	1		2
76	17		1	1	2	1	4	5		1	1	1
77	3			1		1		1				
78	5			1			1	2		1		
79	8				1	2	2		1	1	1	
Total	25,772	645	1,597	3,340	5,016	5,065	4,189	2,786	1,605	753	395	381

Number of cases, 25,772. Height: Mean, 66.67 inches; standard deviation, 2.65±0.008 inch. Chest circumference (expiration): Mean 33.11 inches; standard deviation, 2.05±0.006 inch.

TABLE LXIII.—*Correlation between weight and chest circumference (expiration): Group 19, French-Canadian, 10 per cent, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds. 95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	666	2	41	78	158	161	106	54	24	19	5	5	5	1		1	1	2				3	
30	1,589	1	30	99	282	353	324	238	125	78	32	5	5	3	2	4	2	1	1			2	2
31	3,343		16	98	291	534	648	636	511	298	176	68	27	14	10	2	5	1	1	2	2	3	
32	5,013		7	41	193	481	741	947	976	632	516	240	120	62	25	12	9	4	2	3	1	1	
33	5,072		1	10	79	246	446	718	831	888	701	502	321	165	74	43	21	18	3	1	2	1	1
34	4,183		4		10	61	182	307	531	653	664	640	476	300	173	99	47	21	8	4	2	1	
35	2,789		2	2	4	25	48	73	201	286	371	432	460	325	217	169	80	55	20	8	4	6	1
36	1,602				3	4	3	30	57	100	157	199	190	218	217	125	119	71	57	27	14	10	1
37	754			1	2	2	5	2	9	17	25	56	75	92	102	103	78	70	40	29	24	12	10
38	393					1	1	2	6	4	7	7	25	43	40	53	40	52	27	31	20	15	19
39	197		1		2	1	2	2	3	3	2	2	5	9	8	14	16	18	32	13	17	12	35
40	186		1	1	1					2	3	1	2	2	1	6	5	9	8	13	24	19	88
Total	25,787	3	103	330	1,025	1,869	2,506	3,009	3,274	2,980	2,659	2,157	1,711	1,234	869	631	423	322	199	131	110	85	157

Number of cases: 25,787. Weight: Mean, 138.15 pounds; standard deviation, 17.69±0.05 pound. Chest circumference (expiration): Mean, 33.11 inches; standard deviation, 2.07±0.01 inch. Correlation: 0.7169±0.0020.

TABLE LXIV.—*Correlation between height and weight: Group 20, German and Scandinavian, 10 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	103	1		1	3	5	10	3	9	9	16	10	7	6	8	5	6			1		1	2
60	53		2	4	4	8	3	6	2	3	4	2	2	4	2	2	2		1	2			
61	108		4	7	11	14	13	11	12	5	10	3	7	3	1	3		1	2			1	
62	214		1	4	36	28	27	35	24	19	16	7	6	3	3	3			1		1		
63	549		4	16	38	76	83	89	85	64	25	23	12	13	8	6	3		2			2	
64	1,104		2	8	44	99	157	188	192	137	103	64	47	23	14	12	5	5	1		1	2	
65	1,967		2	22	57	132	218	278	315	295	232	164	102	54	36	22	16	4	4	1	3	5	5
66	3,141		1	9	45	126	241	386	541	509	410	314	220	129	73	52	34	18	13	10	4	3	3
67	4,034		1	2	25	93	207	349	506	655	630	507	362	249	181	101	56	38	22	16	12	9	13
68	4,590		4	5	14	42	141	266	459	621	700	679	571	378	257	193	107	57	29	28	17	7	15
69	4,116		1	1	2	16	85	144	280	448	578	622	542	434	345	234	143	93	53	32	17	17	29
70	3,311				5	8	27	64	155	315	379	503	451	390	323	266	162	83	64	45	21	24	26
71	2,215			1	1	3	11	20	66	121	206	289	318	287	281	222	154	82	53	39	17	13	31
72	1,372		1			2	1	12	25	55	83	144	176	187	188	135	116	88	64	32	21	13	29
73	674		1					4	5	9	37	60	75	84	85	88	80	52	39	17	8	13	17
74	318				1		1	1	1	3	13	14	26	29	44	47	41	21	25	17	15	5	14
75	126								3	1	2	7	8	11	17	17	16	7	12	14	3	5	3
76	46								1			6		3	5	4	5	9	4	4	1	1	3
77	21						1				1		2		3	3	2	2	4	1	1		1
78	14										1	4				1		4		2	1		1
79	19								1	1	2	2			2	1		1	2	2	1	1	3
Total	28,095	1	24	80	286	652	1,226	1,856	2,682	3,270	3,448	3,424	2,934	2,287	1,876	1,417	948	565	395	263	144	122	195

Number of cases: 28,095. Height: Mean, 68.11 inches; standard deviation, 2.62±0.007 inch. Weight: Mean, 146.66 pounds; standard deviation, 17.00±0.048 pound.

Table LXV.—*Correlation between height and chest circumference (expiration): Group 20, German and Scandinavian, 10 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	104	1	4	9	17	19	16	15	12	6	4	1
60	53	1	3	10	9	8	8	9	2	1	1	1
61	108	8	11	13	15	27	18	9	3	2	2	
62	214	5	16	40	41	42	44	20	4	2		
63	536	12	35	87	125	114	86	37	22	9	5	4
64	1,103	22	78	157	221	244	169	122	57	17	7	9
65	1,967	40	108	248	415	442	345	211	84	42	17	15
66	3,138	46	126	373	601	704	568	379	191	89	36	25
67	4,024	33	145	369	689	867	821	589	275	144	55	37
68	4,591	31	109	330	704	993	990	711	395	196	83	49
69	4,114	19	85	246	563	794	904	698	459	207	77	62
70	3,300	16	56	165	367	636	746	581	376	217	84	56
71	2,208	3	33	113	225	399	489	410	273	143	69	51
72	1,372	1	13	49	144	213	296	255	194	115	61	31
73	675		4	18	50	109	142	149	101	62	29	11
74	317	2	1	7	19	33	69	66	55	33	22	10
75	124	1		3	11	13	24	22	28	11	8	3
76	49		1	2	1	2	10	12	10	9		2
77	21					4	4	4	6	2		1
78	14				1	1	2	4		5		1
79	19		1	1	2	2	1	2	4	1	3	2
Total	28,051	241	829	2,240	4,220	5,666	5,752	4,305	2,551	1,313	563	371

Number of cases: 28,051. Height: Mean, 68.11 inches; standard deviation, 2.62±0.007 inch. Chest circumference (expiration): Mean, 33.72 inches; standard deviation, 1.93±0.005 inch.

TABLE LXVI.—*Correlation between weight and chest circumference (expiration) Group 20, German and Scandinavian, 10 per cent plus, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	240	1	8	24	48	48	42	24	14	12	10	4	1	1	1		1		1				
30	829		3	23	82	144	170	147	108	75	30	23	9	3	3	2	4			1	1	1	
31	2,239		4	17	93	201	336	406	431	319	194	121	59	29	17	6	2	2	1		1		
32	4,222		2	8	33	164	382	560	736	782	611	455	240	128	60	36	11	8	5	1			
33	5,666		4	1	12	64	192	441	774	967	1,064	826	569	355	208	119	40	18	6	2	3	1	
34	5,757		1	3	6	16	72	202	408	733	863	1,022	883	603	432	289	138	43	29	7	4	3	
35	4,306					6	15	59	159	288	468	646	704	603	527	367	222	122	73	23	9	10	5
36	2,552		1	2	2	1	6	16	35	68	145	239	310	367	378	344	266	162	94	61	20	25	10
37	1,310		1	3	2	5		1	6	15	37	65	133	154	184	172	159	126	89	66	45	24	23
38	565			1	1	1	2		5	1	2	14	20	29	51	61	87	57	67	64	31	22	49
39	218		2						1	1	1	4	2	9	11	16	18	20	22	26	23	22	40
40	152		1		3	2	5		3	1	3	2	1	7	3	4	5	7	8	7	9	13	68
Total	28,056	1	27	82	282	652	1,222	1,856	2,680	3,262	3,428	3,421	2,931	2,288	1,875	1,416	953	565	395	258	146	121	195

Number of cases: 28,056. Weight: Mean, 146.67 pounds; standard deviation, 17.01 ± 0.048 pound. Chest circumference (expiration): Mean, 33.72 inches: standard deviation, 1.95 ± 0.006 inch.

TABLE LXVII.—*Correlation between height and weight: Group 21, German and Austrian, 20 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
59	197	1	4	3	8	18	10	20	20	15	26	12	17	5	8	16	7		1	1	1		4
60	110		2	8	15	15	12	13	6	5	8	6	3	5	4	4	1		1	2			
61	332	2	11	18	55	48	34	38	31	24	17	18	14	11	3	1	1	1		1		4	
62	695	1	17	47	86	120	112	84	69	64	29	17	14	14	11	5	1	3			1		
63	1,416	2	16	68	119	213	235	203	187	124	80	62	35	25	14	15	1	5	2			3	7
64	2,358		18	62	120	247	309	356	346	271	232	152	77	60	45	23	9	9	3	8	6	3	2
65	3,806		14	44	156	337	465	497	575	513	387	288	180	109	91	50	26	18	20	15	9	4	8
66	5,138		7	29	120	266	441	665	713	770	653	499	339	209	121	107	63	44	26	17	8	10	31
67	5,954		5	14	61	218	381	635	778	911	782	683	457	363	230	141	97	54	53	23	27	21	20
68	5,865		5	14	36	97	265	446	651	763	789	755	625	445	328	238	146	83	54	35	29	19	42
69	4,949		1	4	13	60	150	240	454	583	664	679	587	396	354	278	154	125	71	35	26	27	48
70	3,525		2	1	4	29	47	128	249	365	445	459	439	385	289	212	165	94	62	45	31	28	46
71	2,200		4		2	4	21	42	86	151	233	286	298	273	219	189	124	71	73	34	18	18	54
72	1,359		1		2	2	5	15	41	81	116	144	175	163	174	116	99	71	42	28	28	17	39
73	609				1		1	4	18	22	49	51	60	76	66	72	58	39	29	25	9	7	22
74	261				1		1	1	4	9	3	23	19	33	33	32	23	25	14	10	11	4	15
75	104								1	1		5	11	11	12	15	10	6	7	11	3	3	8
76	38		1		1				1	1		2	3	2	6	3	6	3	4	3	2		
77	16									3					2	1	4	2	2		1		1
78	11												1	2	1			1	2	2	1	1	
79	19								1	2	2			2		2	2	1	1	1		2	3
Total	38,962	6	108	312	800	1,674	2,489	3,387	4,231	4,678	4,515	4,141	3,354	2,589	2,011	1,520	997	655	467	296	211	171	350

Number of cases: 38,962. Height: Mean, 67.41 inches; standard deviation, 2.69±0.007 inch. Weight: Mean, 143.27 pounds; standard deviation, 18.05±0.044 pound.

TABLE LXVIII.—*Correlation between height and chest circumference (expiration): Group 21, German and Austrian, 20 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	197	9	8	18	41	35	35	20	19	4	6	2
60	110	1	13	18	26	15	19	5	8	2	2	1
61	332	20	34	66	60	68	34	26	14	6	2	2
62	697	37	81	128	133	124	87	66	25	11	3	2
63	1,401	55	137	232	312	263	185	108	66	22	13	8
64	2,357	84	184	372	481	437	370	207	122	53	28	19
65	3,805	114	291	532	754	747	579	380	209	107	51	41
66	5,139	117	281	643	952	1,117	905	547	307	144	63	63
67	5,954	109	334	651	1,070	1,221	1,109	692	392	208	85	83
68	5,857	79	224	548	991	1,144	1,120	837	476	230	109	99
69	4,951	42	162	442	760	957	980	719	475	213	97	104
70	3,525	31	98	219	495	736	743	514	355	188	77	69
71	2,200	16	48	159	256	416	437	367	250	123	72	56
72	1,360	5	29	77	153	217	307	240	145	97	49	41
73	609	3	7	25	66	102	124	105	81	51	24	21
74	261	1	3	10	20	38	47	49	51	19	14	9
75	104	....	....	3	8	15	14	24	17	10	6	7
76	38	....	....	1	3	5	10	10	5	4	....	....
77	16	....	....	1	....	2	1	4	3	3	....	2
78	11	....	....	....	....	1	2	3	2	3	....	....
79	19	....	....	2	1	2	4	1	4	1	2	2
Total	38,943	723	1,934	4,147	6,582	7,662	7,112	4,924	3,026	1,499	703	631

Number of cases: 38,943. Height: Mean, 67.41 inches; standard deviation, 2.69±0.007 inch. Chest circumference (expiration): Mean, 33.40 inches; standard deviation, 2.05±0.005 inch.

TABLE LXIX.—*Correlation between weight and chest circumference (expiration): Group 21, German and Austrian, 20 per cent plus, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200 and over.
29	702	4	36	83	141	152	121	64	43	21	16	6	4	2	1	......	1	......	1	1	1	4	......
30	1,932	......	27	114	209	377	381	307	221	146	65	37	15	10	3	4	4	4	1	1	1	4	1
31	4,144	1	20	70	233	519	705	768	716	480	301	162	91	33	18	13	2	5	2	1	......	2	2
32	6,579	1	6	29	135	397	705	1,051	1,208	1,113	782	554	300	160	71	40	14	6	3	......	1	1	2
33	7,657	......	11	7	46	169	385	737	1,089	1,380	1,348	1,002	673	415	206	118	33	18	9	4	5	1	1
34	7,113	......	3	3	13	34	141	331	634	956	1,127	1,185	979	675	499	283	148	53	22	11	9	4	3
35	4,923	......	3	1	5	13	30	83	217	411	583	744	713	674	531	396	233	136	96	21	17	13	3
36	3,025	......	......	2	1	3	9	28	72	123	217	316	395	398	427	379	242	153	103	77	35	22	23
37	1,496	......	1	......	1	2	1	5	14	27	61	97	133	163	166	191	184	151	99	69	58	32	41
38	707	......	......	1	7	2	1	4	4	9	5	21	35	46	66	69	93	82	77	58	39	32	56
39	345	......	......	......	1	2	1	2	3	3	......	9	9	7	13	20	30	34	37	32	29	35	78
40	288	......	1	......	2	5	5	4	2	5	5	4	2	5	8	5	12	13	17	18	17	20	138
Total	38,911	6	108	310	794	1,675	2,485	3,384	4,223	4,674	4,510	4,137	3,349	2,588	2,009	1,518	996	655	467	293	212	170	348

Number of cases: 38,911. Weight: Mean, 143.27 pounds; standard deviation, 18.04 ± 0.04 pound. Chest circumference (expiration): Mean, 33.42 inches; standard deviation 2.07 ± 0.01 inch. Correlation: 0.7079 ± 0.0017.

TABLE LXX.—*Correlation between height and weight: Group 22, German and Austrian, 15 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Weight, in pounds.																				
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200 and over.
59	553	5	14	25	29	45	43	69	57	43	57	41	38	22	19	22	9	3	2	1	2	2	5
60	531	5	17	51	70	83	67	53	41	30	23	28	16	14	9	15	4		2	2		1	
61	1,306	9	36	98	193	228	178	174	108	98	53	34	35	20	13	6	6	4	4	2	2	5	
62	2,649	4	60	175	329	417	421	383	279	217	140	73	55	34	24	14	6	6	3	2	4	3	
63	5,143	11	60	208	445	710	814	809	707	496	306	229	103	90	47	40	25	11	5	4	1	12	10
64	8,493	6	54	192	503	944	1,212	1,253	1,271	997	766	473	298	205	116	86	35	34	11	14	9	8	6
65	12,958	1	38	182	540	1,113	1,563	1,783	1,964	1,764	1,360	952	611	385	253	167	80	63	51	34	19	18	17
66	16,913	1	24	93	399	975	1,606	2,209	2,447	2,523	2,124	1,563	1,011	686	439	302	172	118	75	48	31	21	46
67	19,021		7	60	225	705	1,295	2,018	2,487	2,858	2,562	2,132	1,581	1,076	686	482	295	174	120	82	66	54	56
68	18,657		10	37	114	389	832	1,466	2,158	2,552	2,539	2,405	1,918	1,338	973	718	426	276	152	114	93	50	97
69	15,275		4	12	32	178	490	829	1,393	1,767	2,063	2,084	1,842	1,370	1,059	786	438	332	202	119	88	70	117
70	11,184		5	4	21	66	182	403	737	1,144	1,450	1,521	1,401	1,218	909	727	488	286	198	141	87	66	130
71	7,045		4		5	12	56	143	278	488	754	916	974	865	734	607	393	258	181	125	74	56	122
72	4,041		1		2	8	13	53	123	223	336	430	536	537	489	361	294	213	133	82	70	44	93
73	1,858				2		5	13	42	60	135	174	192	241	206	219	169	124	91	63	35	30	57
74	821				2	1	2	7	9	20	24	58	84	92	105	111	92	64	44	30	23	13	40
75	314					1	1	1	5	2	7	15	27	37	41	41	30	26	17	22	11	8	22
76	104		1		1				3	4	2	4	5	7	14	11	19	7	12	8	3	1	2
77	54		1				1		1	4		4	2	2	2	8	8	4	7	2	2		6
78	32			1		1	1		1	2	2	2	2	2	2	2	1	3	3	3	2	1	1
79	42							2	3	3	4	1	3	4	1	4	2	1	2	2	3	2	5
Total	126,994	42	336	1,138	2,912	5,876	8,782	11,668	14,114	15,295	14,707	13,139	10,734	8,245	6,141	4,729	2,992	2,007	1,315	900	625	465	832

Number of cases: 126,994. Height: Mean, 67.27 inches; standard deviation, 2.72 ± 0.004 inch. Weight: Mean, 142.31 pounds; standard deviation, 17.73 ± 0.024 pound.

TABLE LXXI.—*Correlation between height and chest circumference (expiration): Group 22, German and Austrian, 15 per cent plus, first million draft recruits.*

Height, in inches.	Total.	Chest circumference, in inches.										
		29	30	31	32	33	34	35	36	37	38	39
59	548	27	47	58	111	102	83	59	36	9	13	3
60	530	29	65	78	117	98	69	42	17	8	5	2
61	1,307	69	149	268	253	242	151	96	46	19	8	6
62	2,655	144	281	482	534	498	358	216	88	28	14	12
63	5,125	208	510	828	1,073	986	729	412	220	84	47	28
64	8,486	328	692	1,286	1,753	1,646	1,299	764	420	180	69	49
65	12,948	411	1,028	1,858	2,558	2,511	2,041	1,318	644	328	142	109
66	16,912	442	1,060	2,236	3,316	3,433	2,775	1,828	989	438	214	181
67	19,010	378	1,033	2,211	3,449	3,890	3,378	2,292	1,259	624	284	212
68	18,620	281	799	1,861	3,191	3,766	3,532	2,421	1,450	720	339	260
69	15,273	158	544	1,351	2,326	3,021	2,997	2,241	1,405	656	300	274
70	11,159	99	346	787	1,586	2,203	2,263	1,729	1,085	598	250	213
71	7,059	44	178	492	863	1,360	1,427	1,156	765	396	203	175
72	4,034	10	70	230	475	724	860	672	496	271	132	94
73	1,859	5	18	91	199	293	384	360	240	140	71	58
74	819	3	12	35	71	119	172	151	133	65	32	26
75	312	2	3	7	21	47	57	64	49	30	18	14
76	105		2	5	8	12	24	27	13	9	2	3
77	54			1	1	7	12	12	9	6	1	5
78	32	1	1	1	2	7	4	6	6	4		
79	40		1	2	2	6	9	5	7	3	3	2
Total	126,887	2,639	6,839	14,168	21,909	24,971	22,624	15,871	9,377	4,616	2,147	1,726

Number of cases: 126,887. Height: Mean, 67.27 inches; standard deviation, 2.72±0.004 inch. Chest circumference (expiration): Mean, 33.32 inches; standard deviation, 2.04±0.003 inch.

TABLE LXXII.—*Correlation between weight and chest circumference (expiration): Group 22, German and Austrian, 15 per cent plus, first million draft recruits.*

Chest circumference, in inches.	Total.	Weight, in pounds.																					
		95–99	100–104	105–109	110–114	115–119	120–124	125–129	130–134	135–139	140–144	145–149	150–154	155–159	160–164	165–169	170–174	175–179	180–184	185–189	190–194	195–199	200–204
29	2,583	37	130	314	532	576	424	263	131	65	36	19	14	9	4	6	4	2	1	1	3	10	2
30	6,837	6	92	373	811	1,334	1,407	1,123	774	460	208	108	50	26	11	11	13	8	1	5	2	12	2
31	14,168	3	54	260	862	1,750	2,452	2,699	2,355	1,704	989	537	254	114	46	31	12	16	15	4	1	5	5
32	21,917	2	22	112	434	1,343	2,430	3,540	4,003	3,690	2,684	1,755	988	483	207	128	47	26	7	8	2	4	2
33	24,978	......	21	40	166	590	1,331	2,420	3,689	4,368	4,259	3,245	2,231	1,310	679	379	135	69	21	10	6	7	2
34	22,633	......	7	16	43	179	518	1,136	2,083	3,072	3,682	3,626	2,980	2,183	1,440	909	433	182	65	43	22	8	6
35	15,871	......	3	5	11	49	143	321	763	1,382	1,932	2,385	2,378	2,164	1,661	1,264	639	391	238	70	48	18	6
36	9,369	......	1	4	6	9	33	89	222	396	688	985	1,276	1,310	1,257	1,071	810	510	290	194	101	64	53
37	4,613	......	4	7	8	14	3	19	50	90	161	271	428	519	568	615	535	445	308	223	146	92	107
38	2,154	......	2	3	7	7	6	12	13	23	29	74	104	149	205	236	257	221	231	179	138	95	163
39	967	......	......	2	7	16	7	4	7	9	8	15	23	31	43	63	87	97	89	106	95	81	177
40	805	......	1	1	15	16	18	9	14	12	14	17	9	17	19	16	27	40	46	58	58	63	335
Total	126,895	48	337	1,137	2,902	5,883	8,772	11,635	14,104	15,271	14,690	13,037	10,735	8,315	6,140	4,729	2,999	2,007	1,312	901	622	459	860

Number of cases: 126,895. Weight: Mean, 142.34 pounds; standard deviation, 17.76 pounds; probable error ±0.024 pound. Chest circumference (expiration): Mean, 33.36 inches; standard deviation, 2.06 ± 0.003 inch.

TABLE LXXIII.—*Comparative frequency distribution of color races by Q. M. C. distribution zones, demobilization.*

Color.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
White	95,972	6,735	24,058	2,724	9,152	31,817	8,224	3,029	3,882	1,987	357	4,007
Negro	4,510	13	194	513	2,116	266	410	513	448	19	1	17
½ Black	643	4	41	69	209	85	53	152	26	2	1	1
¼ Black	296	....	19	37	100	48	22	44	25	1	....	....
¾ Black	1,208	1	33	66	341	186	73	487	18	1	1	1
Indian	104	....	3	1	2	16	33	4	5	13	17	10
Chinese	18	1	2	1	3	2	1	1	1	2	1	3
Japanese	29	1	3	9	4	5	1	....	5	....	....	1
Other	66	1	6	2	3	3	1	3	30	2	12	3
Total	102,846	6,756	24,359	3,422	11,930	32,428	8,818	4,233	4,440	2,027	390	4,043

TABLE LXXIV.—*Correlation between stature and weight in white and colored troops, demobilization.*

Height, in centimeters.	Total.	Weight, in pounds.											Mean weight.
		100–109	110–119	120–129	130–139	140–149	150–159	160–169	170–179	180–189	190–199	200 and over.	
													Pounds.
148–149	18		1	4	5	2	4	2					140.06
150–151	42	6	9	11	9	4	2		1				126.17
152–153	120	10	48	29	21	6	4	1	1				123.33
154–155	324	21	88	111	66	27	5	3	2		1		125.55
156–157	622	33	162	194	153	51	18	6	5				126.59
158–159	1,210	42	285	436	269	115	39	13	6	2	3		127.49
160–161	2,300	60	414	723	634	317	102	37	8	4	1		129.98
162–163	3,569	71	491	1,077	1,055	556	199	68	35	14	3		132.02
164–165	5,408	66	495	1,445	1,730	967	459	152	57	20	13	4	134.76
166–167	7,056	35	457	1,564	2,100	1,732	747	260	123	16	17	5	137.52
168–169	8,978	29	342	1,662	2,743	2,284	1,197	483	158	53	14	13	139.81
170–171	9,557	16	233	1,276	2,600	2,609	1,649	801	234	90	31	18	143.10
172–173	9,563	4	152	960	2,327	2,758	1,918	904	366	115	40	19	145.42
174–175	8,936	7	93	643	1,822	2,478	2,083	1,137	449	129	58	37	148.21
176–177	7,651	5	56	334	1,211	2,068	1,986	1,175	503	210	64	39	151.26
178–179	5,902	3	22	157	739	1,468	1,560	1,088	534	216	76	39	154.13
180–181	4,031	4	23	86	361	841	1,058	877	463	209	68	41	156.92
182–183	2,657		5	47	158	529	694	617	351	151	59	46	159.14
184–185	1,595	4	10	18	60	220	376	417	267	136	49	38	162.59
186–187	1,029	4	3	14	34	92	214	222	182	201	32	31	166.53
188–189	555	3	4	10	27	66	109	135	98	57	32	14	163.85
190–191	221	1		2	8	23	35	52	41	32	15	12	168.07
192–193	111			5	6	18	11	25	13	13	8	12	166.84
194–195	48			4	4	7	10	4	10	4	3	2	160.96
196–197	31			1	7	2	3	3	4	6	3	2	164.82
198–199	17			1	1	1	5	5	3	1			159.21
200–201	4					1	1		1		1		167.00
202–203	1					1							144.50
204–205	2			1	1								129.50
Total	81,558	424	3,393	10,815	18,151	19,243	14,488	8,487	3,915	1,679	591	372	
Mean height ... cm		163.33	164.61	167.31	169.78	172.24	174.30	176.14	177.38	179.15	178.73	179.93	

Weight: Mean, 144.92 pounds; standard deviation, 17.06±0.0285 pound. Height: Mean, 171.93 centimeters: standard deviation, 6.70±0.0112 centimeter. Correlation: 0.5198±0.0017.

TABLE LXXV.—*Correlation between stature and waist circumference, white and colored troops, demobilization.*

Waist circumference, in centimeters.	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204 and over.	Mean height.
																															Cm.
50–51	61								3	5	2	6	11	9	4	5	4	6	4	1	1										173.12
52–53	59					1		1	2	3	6	7	8	7	8	5	2	4	1		2	1	1								172.50
54–55	46								2	3	7	3	2	9	3	5	5		3	1		1	2								173.54
56–57	57							3	2	1	3	6	7	2	11	8	6	2	2	2	1	1									173.55
58–59	51				1	1	1	2	1	2	3	6	7	7	3	3	5	5		1	1	2									172.34
60–61	62						2	2	3	4	6	8	5	8	2	5	9	6	2												171.76
62–63	153				3	5	9	15	18	16	17	19	18	6	13	4	3	1	4	2											167.08
64–65	407		4	2	6	2	17	29	55	45	54	46	37	36	31	18	13	7	2		1	1				1					167.58
66–67	1,182			3	18	34	45	84	115	144	132	138	136	117	79	66	30	20	10	5	3	2	1								167.87
68–69	2,999	1	4	9	34	63	103	155	213	339	343	404	378	292	257	167	95	68	35	16	9	7	3	1		1	1			1	168.75
70–71	7,201		9	20	43	79	192	335	526	675	830	918	884	811	687	439	338	181	108	67	34	12	7	4	1	1					169.58
72–73	10,874	6	6	32	63	114	256	392	667	953	1,150	1,353	1,393	1,238	1,064	802	576	352	225	105	64	31	13	6	5	4	1	1		2	170.26
74–75	14,110	4	7	22	60	114	237	443	735	1,121	1,429	1,628	1,783	1,707	1,437	1,241	898	516	325	199	98	61	21	11	3	6	2			2	171.02
76–77	15,490	4	5	20	49	124	178	441	685	1,025	1,315	1,690	1,969	1,957	1,821	1,449	1,077	704	454	251	129	73	28	24	7	3	3	2		3	171.77
78–79	14,697	2	5	16	38	94	150	333	558	818	1,170	1,441	1,826	1,807	1,788	1,560	1,206	774	471	276	188	98	38	22	9	3	5			1	172.49
80–81	11,759	1	6	9	41	51	106	245	355	594	843	1,096	1,347	1,522	1,448	1,242	1,003	743	462	304	169	98	35	23	8	5	1		1	1	173.07
82–83	8,466	1	6	8	14	34	51	131	240	376	585	694	946	1,018	1,062	954	850	582	366	249	139	93	38	16	6	2	5				173.70
84–85	5,699	3	2	3	12	18	55	101	141	220	345	475	613	614	683	685	562	419	308	201	114	63	33	15	7	6	1				174.10
86–87	3,925			1	3	8	28	58	88	149	223	309	412	474	490	464	397	302	215	129	89	52	20	8	3	1		2			174.36
88–89	2,572		3	3	7	7	16	26	60	98	118	200	284	299	318	309	258	192	124	91	75	37	23	11	4	4	2	1	1	1	174.65
90–91	1,376				6	8	8	17	29	63	82	88	131	152	159	148	147	116	74	50	38	31	15	7	4	2	1				174.83
92–93	785			3	2	5	9	20	20	28	55	58	83	70	85	90	80	62	43	28	26	9	4	4	1						174.11
94–95	513	1		1		1	5	9	11	28	28	46	63	56	52	50	50	33	29	23	14	8	2	3							174.07
96–97	339				1	2	4	2	11	16	16	30	39	45	48	39	29	18	13	14	6	3	2				1				173.68
98–99	256					1	2		6	8	18	20	27	45	30	20	29	15	14	6	6	4	2	2	1						174.38
100–101	127						1	1	3	5	7	9	11	11	18	13	10	10	8	8	7	2	1	2							175.62
102–103	80						1		3	6	2	7	7	13	12	5	12	2	6	2	1		1								173.78
104 and over	64								2	5	9	11	8	2	3	6	9	2	2	1			4								172.97
Total	103,410	23	57	152	401	766	1,476	2,845	4,554	6,750	8,798	10,716	12,435	12,334	11,616	9,802	7,703	5,142	3,310	2,032	1,215	690	294	159	59	39	23	6	2	11	......
Mean waist circumference..cm.	......	77.20	75.62	75.41	75.14	75.24	75.25	75.68	75.81	76.21	76.66	76.98	77.55	77.94	78.36	78.81	79.27	79.63	79.94	80.42	80.90	80.88	81.61	81.49	81.28	79.53	80.59	81.17	84.50	76.68	......

Waist circumference: Mean, 77.84 centimeters; standard deviation, 5.91 ± 0.0088 centimeter. Height: Mean, 171.99 centimeters; standard deviation, 6.68 ± 0.0099 centimeter. Correlation: 0.1923 ± 0.0019.

TABLE LXXVI.—*Correlation between leg length and knee height, white troops, demobilization.*

Knee height, in centimeters.	Total.	Leg length, in centimeters.																		Mean leg length.
		56–57	58–59	60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92 and over.	
																					Cm.
38–39	839	3	18	29	61	115	139	143	137	98	41	38	13	2	1	......	......	......	1	......	68.67
40–41	2,930	12	26	139	271	418	495	491	423	295	175	104	50	16	9	1	2	3	......	......	68.17
42–43	7,721	16	42	175	427	963	1,380	1,451	1,319	889	525	304	135	58	18	7	4	4	......	4	68.92
44–45	14,515	25	36	123	389	1,018	2,018	2,910	3,010	2,240	1,374	808	350	127	45	18	9	4	3	8	70.16
46–47	17,743	11	17	92	269	580	1,364	2,807	3,921	3,651	2,456	1,442	722	276	79	26	11	6	5	8	71.53
48–49	14,711	4	18	71	210	523	895	1,530	2,447	2,906	2,640	1,855	981	406	145	40	18	9	2	11	72.54
50–51	8,994	5	15	19	73	232	566	875	1,213	1,330	1,496	1,373	943	488	223	82	33	16	5	7	73.59
52–53	5,007	1	3	4	13	43	155	449	806	880	736	676	550	362	197	75	35	16	3	3	74.33
54–55	2,433	1	1	3	5	5	23	90	299	421	419	377	298	221	155	60	37	10	3	5	75.69
56–57	914	1	1	......	2	1	7	12	65	111	143	183	120	111	69	48	22	14	3	1	77.12
58–59	273	......	......	......	1	3	6	8	17	13	30	49	44	41	22	17	12	8	1	1	77.88
60–61	47	......	......	......	......	2	3	1	......	2	4	2	7	8	2	3	4	4	5	......	79.95
62–63	14	......	......	......	1	......	1	......	......	1	1	2	......	3	......	2	2	1	......	......	78.64
Number measured	76,141	79	177	655	1,722	3,903	7,052	10,767	13,657	12,837	10,040	7,213	4,213	2,119	965	379	189	95	31	48	......
Not measured	21,051	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	97,192	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean knee height......cm.	......	44.50	44.20	43.83	44.34	44.71	45.33	45.99	46.71	47.32	47.96	48.58	49.26	50.21	51.02	51.85	52.21	52.02	51.79	48.54	......

Leg length: Mean, 71.69 centimeters; standard deviation, 4.71±0.0081 centimeter. Knee height: Mean, 47.08 centimeter; standard deviation, 3.62±0.006 centimeter. Correlation: 0.4178±0.0020.

TABLE LXXVII.—*Correlation between chest circumference (rest) and weight, white troops, demobilization.*

Weight, in pounds.	Total.	Chest circumference, in centimeters.										Mean chest circumference.
		68–77	78–81	82–85	86–89	90–93	94–97	98–101	102–105	106–109	110 and over.	
												Cm.
100–109	418	84	166	118	24	10	8	3	4	1	....	81.32
110–119	3,365	211	1,078	1,409	546	79	25	9	4	2	2	82.74
120–129	10,697	176	1,570	4,730	3,388	707	88	31	2	2	3	84.74
130–139	17,959	80	856	5,546	7,887	3,050	472	61	3	1	3	86.77
140–149	18,892	53	311	2,715	8,111	5,988	1,512	192	9	....	1	88.80
150–159	14,040	47	149	808	4,110	5,833	2,613	444	32	3	1	90.72
160–169	8,207	29	45	241	1,152	3,229	2,636	777	87	10	1	93.27
170–179	3,747	9	28	80	261	955	1,458	760	172	23	1	94.76
180–189	1,488	2	9	17	66	178	512	496	166	40	2	96.98
190–199	545	3	3	10	13	53	113	183	106	50	11	98.82
200 and over	348	2	....	2	3	7	26	95	97	69	47	103.03
Number measured	79,706	696	4,215	15,676	25,561	20,089	9,463	3,051	682	201	72	....
Not measured	16,168	....	....	....	....	....	....	....	....	....	....	....
Total	95,874	....	....	....	....	....	....	....	....	....	....	....
Mean weight ... lbs.	....	126.77	126.66	132.99	141.04	150.19	159.58	169.36	180.61	189.32	191.17	....

Weight: Mean, 144.67 pounds; standard deviation, 16.92±0.0283 pound. Chest circumference (rest): Mean, 88.81 centimeters: standard deviation, 5.19±0.009 centimeter. Correlation: 0.6598±0.0013.

TABLE LXXVIII.—*Correlation between chest circumference (rest) and neck circumference, white troops, demobilization.*

Neck circumference, in centimeters.	Total.	Chest circumference (rest), in centimeters. 68–73	74–77	78–81	82–85	86–89	90–93	94–97	98–101	102–105	106–109	110 and over.	Mean chest circumference.
													Cm.
28 and under	151	1	4	2	53	69	17	2	3				86.36
29	55				4	2	17	25	7				93.61
30	219	2	5	27	40	59	49	24	9	3	1		87.94
31	314	7	31	73	80	63	33	17	9	1			84.33
32	1,133	13	93	340	418	193	49	19	6	2			82.95
33	4,286	21	133	860	1,796	1,162	247	50	15	2			84.14
34	11,353	29	124	1,354	4,407	3,897	1,284	205	40	10	2	1	85.48
35	20,094	28	116	1,244	5,494	8,010	4,144	883	156	17	2		87.10
36	22,628	26	48	670	3,877	8,644	6,739	2,176	408	36	4		88.74
37	18,047	21	26	299	1,827	5,468	6,300	3,218	769	99	14	6	90.37
38	10,051	11	15	112	611	2,175	3,491	2,539	906	153	34	4	91.94
39	4,426	4	3	44	199	650	1,263	1,322	694	191	44	12	93.58
40	1,716		1	11	33	166	384	499	402	160	46	14	95.62
41	492	1			4	25	61	150	120	75	40	16	98.14
42	147			1		4	14	19	37	37	24	11	100.97
43	52	2		2	2	2	5	5	11	8	5	10	99.12
44	23			4	1	4	4	1	1	4	1	3	94.28
45	22			1	3	6	1	1	2	1	5	2	95.68
46	17				1	7	3	2	2	1	1		92.44
47	16					5	5	2	3			1	93.50
48	5			1			2	2					90.70
49	6				1		1	2		1		1	96.83
50	18			1	6	4	7						87.72
Number measured	95,271	166	599	5,046	18,857	30,615	24,120	11,163	3,600	801	223	81	
Not measured	603												
Total	95,874												
Mean neck circumference . . . cm.		34.90	33.86	34.48	35.02	35.72	36.45	37.19	37.88	38.82	39.71	40.77	

Chest circumference (rest): Mean, 88.79 centimeters; standard deviation, 5.18±0.0080 centimeters. Neck circumference: Mean, 35.98 centimeters; standard deviation, 1.80±0.003 centimeter. Correlation: 0.5061±0.0016.

TABLE LXXIX.—*Correlation between chest circumference (rest) and transverse pelvic diameter, white troops, demobilization.*

Transverse pelvic diameter, in centimeters.	Total.	Chest circumference (rest), in centimeters.										Mean chest circumference (rest).
		68–77	78–81	82–85	86–89	90–93	94–97	98–101	02–105	106–109	110	
												Cm.
19 and under	3			1	1						1	88.83
20	80		2	31	19	18	9	1				87.70
21	216	8	24	55	62	47	15	4	1			86.87
22	335	8	53	98	98	52	16	7	2	1		86.19
23	734	32	100	256	203	96	37	8	1	1		86.14
24	1,480	29	198	495	515	181	48	10	4			85.73
25	3,235	58	409	1,113	1,066	461	106	18	3	1		85.82
26	6,112	117	653	1,858	2,113	1,067	247	55	1	1		86.34
27	9,588	136	826	2,717	3,397	1,869	536	97	9		1	86.88
28	14,419	137	898	3,551	5,123	3,387	1,090	211	21		1	87.64
29	15,817	99	678	2,977	5,474	4,364	1,769	402	48	4	2	88.94
30	13,885	80	513	2,150	4,442	4,069	1,975	551	90	15		89.42
31	10,014	45	299	1,369	2,910	2,953	1,687	607	109	29	6	90.04
32	7,243	30	175	931	2,024	2,133	1,269	496	147	31	7	90.58
33	5,069	29	89	567	1,398	1,507	923	401	105	45	5	90.97
34	2,956	11	42	245	703	892	614	300	110	27	12	91.97
35	1,676	9	34	97	352	481	403	191	68	24	17	92.66
36	828	4	11	76	177	183	192	118	38	18	11	92.90
37	448	1	15	55	108	106	66	58	25	9	5	91.95
38	365		13	69	127	71	47	24	4	7	3	90.81
39	364	3	13	62	137	70	47	16	7	4	5	90.62
40	202	1	10	44	64	51	21	3	4		4	88.98
41	79	1	1	10	28	20	12	4	2	1		91.11
42 and over	331		17	41	100	82	54	24	6	5	2	90.50
Number measured	95,479	838	5,073	18,868	30,641	24,160	11,183	3,606	805	223	82	
Not measured	395											
Total	95,874											
Mean transverse pelvic diameter ... cm.		27.96	27.99	28.50	29.22	29.85	30.62	31.31	32.41	33.41	34.68	

Chest circumference (rest): Mean, 88.78 centimeters; standard deviation, 5.17±0.0080 centimeter. Transverse pelvic diameter: Mean, 29.45 centimeters; standard deviation, 2.90±0.005 centimeter. Correlation: 0.3073±0.0021.

TABLE LXXX.—*Correlation between chest transverse and chest antero-posterior, white troops, demobilization.*

Chest, antero-posterior, in centimeters.	Total.	Chest, transverse, in centimeters.																Mean chest transverse.
		18–19	20–21	22–23	24–25	26–27	28–29	30–31	32–33	34–35	36–37	38–39	40–41	42–43	44–45	46–47	48–49	Cm.
14–15	19				2	8	5	2	1						1			28.50
16–17	377		3	12	56	149	128	25		2		2						27.08
18–19	8,606	6	43	71	716	2,882	3,309	1,291	211	32	23	13	3	1	1	2	2	27.87
20–21	40,595	7	187	228	1,605	9,498	16,664	9,520	2,255	331	132	118	29	11	1	3	6	28.61
22–23	36,105		159	189	673	5,099	13,489	11,511	3,891	713	203	111	39	12	4	4	8	29.37
24–25	8,795	1	26	26	87	673	2,459	3,192	1,684	493	106	31	10	2	2	1	2	30.25
26–27	1,291	1	8	9	20	70	273	381	315	156	46	7	1		3	1		30.92
28–29	432		5	1	10	58	116	119	56	33	17	13	1		2		1	30.32
30–31	182		3	4	5	18	35	62	21	16	8	7	3					30.53
32–33	142		1	5	2	12	18	44	36	13	5	4			1		1	31.01
34–35	21		1				3	11	3	3								30.60
36–37	5							2	2		1							32.50
38–39	4			1			1			1		1						31.00
40–41	9					1	2	6										29.61
Total	96,583	15	436	546	3,176	18,468	36,502	26,166	8,475	1,793	541	307	86	26	15	11	20	
Mean chest antero-posterior...cm.		20.37	21.57	21.37	20.59	20.92	21.40	21.94	22.52	23.23	23.00	22.44	22.31	21.65	24.10	21.77	22.5	

Chest, transverse: Mean, 29.02 centimeters; standard deviation, 2.40±0.0037 centimeter. Chest, antero-posterior: Mean, 21.58 centimeters; standard deviation, 1.87±0.0029 centimeter. Correlation: 0.271±0.0020.

TABLE LXXXI.—*Correlation between waist circumference and transverse pelvic diameter, white troops, demobilization.*

Transverse pelvic diameter, in centimeters.	Total.	Waist circumference, in centimeters.												Mean waist circumference.
		50–63	64–67	68–71	72–75	76–79	80–83	84–87	88–91	92–95	96–99	100–103	104 and over.	
														Cm.
19 and under	25			20	2	1	1						1	69.18
20	80	2	3	9	22	18	17	7	2					76.50
21	216	10	17	27	62	43	36	16	4		1			75.24
22	333	7	42	94	81	55	19	22	8	3	1	1		73.74
23	730	7	87	215	228	111	45	22	10	1	2	1	1	73.11
24	11,473	10	96	418	534	302	69	25	11	4		2	2	73.42
25	3,250	30	164	755	1,245	775	210	50	11	5	4		1	73.63
26	6,123	45	193	1,150	2,295	1,692	577	124	35	7	4		1	74.65
27	9,608	47	235	1,486	3,341	2,925	1,214	271	65	13	10		1	75.36
28	14,460	73	222	1,567	4,250	4,896	2,472	728	195	34	21		2	76.58
29	15,828	55	158	1,278	3,719	5,179	3,572	1,368	396	64	32	4	3	77.75
30	13,955	55	104	933	2,622	4,139	3,520	1,812	585	124	50	7	4	78.92
31	10,060	36	75	560	1,698	2,623	2,534	1,523	676	239	71	19	6	79.84
32	7,274	23	43	458	1,235	1,829	1,626	1,109	580	245	89	25	12	80.17
33	5,096	24	21	230	796	1,372	1,173	740	418	180	88	34	20	80.64
34	2,971	11	8	95	409	725	715	476	277	126	69	44	16	81.64
35	1,683	10	3	53	159	388	376	320	207	84	38	23	22	82.59
36	823	1	5	29	95	158	188	140	105	45	29	16	12	82.92
37	453	1	3	33	73	108	72	55	42	25	24	8	9	81.80
38	363	1	4	33	81	108	74	33	11	3	5	2	8	78.77
39	362		5	23	98	97	66	36	17	5	6	5	4	79.01
40 and over	492	4	7	26	93	142	106	61	23	11	9	2	8	79.71
Number measured	95,658	452	1,495	9,492	23,138	27,686	18,682	8,938	3,678	1,218	553	193	133	
Not measured	499													
Total	96,157													
Mean transverse pelvis.....cm.		28.59	27.58	28.04	28.63	29.35	30.06	30.76	31.41	32.08	32.47	33.51	33.98	

Waist circumference: Mean, 77.87 centimeters; standard deviation, 6.00±0.0093 centimeter. Transverse pelvis: Mean, 29.43 centimeters; standard deviation, 2.85±0.0044 centimeter. Correlation: 0.3510±0.0019.

Table LXXXII.—*Correlation between length of arm and forearm, white troops, demobilization.*

Forearm, in centimeters.	Total.	Arm length, in centimeters.																				Mean arm length.
		60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99	
																						Cm.
20	85					3	12	8	8	17	13		7		9	6	1		1			77.88
21	117		3	4	5	5	26	13	10	12	12		13		5	1	2	3	1	1	1	75.58
22	259	2		8	23	38	38	35	26	19	16	23	9	9	3	5	1	3		1		74.03
23	1,098	3	7	28	60	151	222	211	172	97	67	33	12	15	9	5	5	1				72.75
24	3,745	1	8	30	81	288	676	844	860	486	276	111	42	24	11	4	1	2				73.53
25	10,404	1	6	12	49	320	1,035	2,036	2,513	2,081	1,374	550	251	89	48	16	4	6	4	7	2	75.12
26	18,146	2	1	7	17	126	717	2,049	3,714	4,216	3,469	2,047	1,045	447	180	69	16	5	9	8	2	76.89
27	20,374		3	5	11	36	261	915	2,393	4,133	4,871	3,587	2,188	1,158	510	228	36	16	9	5	9	78.71
28	15,194	1		2	2	16	67	197	757	1,747	3,154	3,610	2,681	1,591	817	386	102	27	16	12	9	80.58
29	8,037		1			4	20	53	161	404	986	1,695	1,801	1,390	835	485	128	50	14	5	5	81.38
30	3,301		1	1		4	8	10	30	89	184	456	666	717	565	352	136	54	16	9	3	83.98
31	1,011					2		3	4	11	25	88	131	190	215	182	74	54	19	9	4	85.91
32	240							2	3	3	11		29		50	59	38	22	18	2	3	87.77
33	93				1	1	2	1	2	2	2		10		16	20	10	13	10	2	1	87.42
34–35	388			2	5	3	24	5	50	56	72		49		42	31	12	18	9	9	1	80.84
Number measured	82,492	10	30	99	254	997	3,108	6,382	10,703	13,373	14,532	12,200	8,934	5,630	3,315	1,849	566	274	126	70	40	
Not measured	13,832																					
Total	96,324																					
Mean forearm....cm.		24.20	24.33	24.22	24.24	24.59	25.12	25.53	26.00	26.46	26.91	27.41	27.83	28.25	28.58	28.93	29.34	29.77	29.79	28.94	28.50	

Arm length: Mean, 78.57 centimeters; standard deviation, 4.69±0.0078 centimeter. Forearm length: Mean, 26.91 centimeters; standard deviation, 1.73±0.0003 centimeter. Correlation: 0.5837±0.0015.

TABLE LXXXIII.—*Correlation between stature and sitting height, white troops, demobilization.*

Sitting height, in centimeters.	Total.	Height, in centimeters.																													Mean height.
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–210	
																															Cm.
70–75	134	.....	.....	.....	1	.....	2	2	3	10	6	8	13	27	19	12	12	9	4	3	2	1									173.07
76–77	40	.....	.....	2	1	.....	2	2	2	2	1	2	.....	2	3	7	3	4	5	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	172.60
78–79	75	.....	2	9	7	4	5	6	3	6	6	5	5	6	2	4	1	1	.....	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	164.15
80–81	596	1	9	17	31	40	49	47	44	50	44	53	64	63	34	21	14	5	5	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	165.67
82–83	1,603	2	15	50	97	162	204	232	224	159	107	87	64	58	55	35	25	9	6	4	4	3	1	.....	.....	.....	.....	.....	.....	.....	162.97
84–85	4,954	2	8	32	129	255	472	714	821	792	581	443	232	153	94	89	53	31	20	8	15	2	5	1	.....	1	.....	.....	.....	1	164.24
86–87	10,900	1	7	12	71	164	447	912	1,445	1,857	1,873	1,619	1,161	605	313	182	97	46	26	18	18	11	4	4	2	1	.....	1	.....	3	166.32
88–89	18,808	2	3	6	26	63	185	538	1,153	2,124	2,944	3,403	3,125	2,328	1,471	780	383	111	52	25	31	29	7	8	4	2	3	.....	1	1	169.03
90–91	23,371	3	2	3	8	13	28	152	394	986	1,928	3,077	4,221	4,159	3,521	2,370	1,351	633	253	113	72	31	15	21	3	8	3	1	.....	2	172.05
92–93	18,713	6	1	.....	4	8	9	19	65	173	502	1,030	2,155	2,996	3,432	3,243	2,447	1,395	695	300	127	61	21	10	8	3	3	.....	.....	.....	174.94
94–95	10,731	1	.....	2	.....	4	4	10	29	32	79	167	498	918	1,504	1,850	1,962	1,536	1,060	591	284	143	26	17	5	4	4	1	.....	.....	177.77
96–97	4,401	1	.....	.....	1	.....	2	10	14	25	46	40	80	133	285	456	670	813	730	532	279	178	70	23	9	2	1	.....	.....	1	180.28
98–99	1,619	2	.....	1	.....	1	1	.....	9	20	32	39	53	55	56	82	122	188	200	227	289	132	65	26	9	7	2	1	.....	.....	181.70
100–101	242	.....	.....	.....	.....	.....	.....	.....	1	3	3	2	5	6	7	5	6	14	23	42	4	46	43	21	5	4	1	.....	.....	1	185.26
102–103	35	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	2	.....	2	4	6	.....	.....	4	8	3	3	.....	1	.....	.....	187.53
104–105	9	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	3	1	1	.....	.....	2	.....	.....	.....	.....	.....	.....	180.50
106–107	8	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	.....	178.50
Number measured	96,239	21	47	135	376	714	1,410	2,645	4,208	6,240	8,153	9,976	11,676	11,512	10,796	9,138	7,146	4,797	3,086	1,877	1,127	639	261	141	49	36	17	5	2	9	....
Not measured	953	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Total	97,192	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Mean sitting height...cm.	......	90.12	83.82	83.62	86.74	84.88	85.42	86.30	86.96	87.66	87.98	89.08	89.96	90.62	91.36	92.00	92.70	93.54	94.18	94.81	95.06	95.26	96.24	95.68	94.56	95.16	93.32	94.50	97.50	90.06	....

Height: Mean, 171.99 centimeters; standard deviation, 6.63±0.0102 centimeter. Sitting height: Mean, 90.39 centimeters; standard deviation, 3.51±0.0054 centimeter. Correlation: 0.6626±0.0012

TABLE LXXXIV.—*Correlation between stature*

Span, in centimeters.	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173
148–149	20	1			2	1	1		1	1	1	1	1	2
150–151	75	1	2	6	19	13	12	8	4	2	3	1	1	
152–153	162	1	9	11	26	32	25	25	17	6		3		1
154–155	289	1	6	22	44	50	62	39	18	16	9	7	3	4
156–157	496		5	23	47	77	109	87	61	39	22	13	4	2
158–159	900		3	24	63	118	175	181	134	96	56	22	14	5
160–161	1,618		6	20	64	125	220	349	327	221	151	83	32	9
162–163	2,614	2	4	12	43	99	258	455	548	488	343	207	78	43
164–165	3,772		3	5	25	87	245	479	759	842	579	424	184	72
166–167	4,933	2	2	2	11	51	129	393	750	1,060	1,051	758	428	165
168–169	6,458	2	2	5	11	27	75	302	679	1,094	1,469	1,294	800	400
170–171	7,966				5	12	65	155	430	942	1,470	1,846	1,500	820
172–173	8,984	1		2	6	8	18	89	249	679	1,205	1,736	2,022	1,519
174–175	9,781		1		3	4	9	54	142	417	862	1,481	2,208	2,090
176–177	9,613	1		2	1	3	1	21	62	195	518	1,035	1,747	2,070
178–179	9,188	4			2	2	1	11	24	99	264	618	1,252	1,752
180–181	7,936						2	4	11	24	94	283	755	1,252
182–183	6,478				1		1	2	4	10	36	97	366	719
184–185	5,048	2		2		1	3	3	6	7	16	51	176	375
186–187	3,752				1	2	1	1	4	13	8	32	71	144
188–189	2,591	1				1	1	1	3	8	10	9	38	63
190–191	1,681				1					2	4	6	10	23
192–193	999						2	2	2	3	3	4	2	14
194–195	604					1				1	4		7	3
196–197	331						1	1		2	2	1	1	2
198–199	200							1		2		1	4	7
200–201	68												1	1
202–203	19													
204–210	20						1							2
Number measured	96,596	19	43	136	375	714	1,417	2,663	4,235	6,269	8,180	10,013	11,705	11,559
Not measured	596													
Total	97,192													
Mean		169.55	158.36	158.88	159.53	160.95	162.43	164.51	166.33	168.32	170.16	171.99	174.30	176.24

Height: Mean, 171.99 centimeters; standard deviation, 6.66±0.0102 centimeter. Span: Mean, 175.58 centimeters; standard deviation, 7.95±0.0122 centimeter. Correlation: 0.7944±0.0008.

TABLE LXXXV.—*Correlation between stature*

Sternal notch, in centimeters.	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173
120–121	31	2	6	2	1	1	5	2	3			4	2	2
122–123	102		12	23	16	4	6	4	11	8		1	6	4
124–125	228		5	35	88	52	7	6	3	11	3	3	1	4
126–127	545		4	33	109	183	120	27	8	9	13	17	5	2
128–129	1,198	1	2	14	57	217	444	298	77	7	19	19	14	5
130–131	2,627	1	9	5	28	120	494	931	652	194	57	51	28	20
132–133	4,377	2	2	5	13	25	189	763	1,602	1,158	370	96	55	22
134–135	7,018		1	6	18	22	52	298	1,188	2,456	1,894	680	150	50
136–137	9,401	1	1	4	11	29	20	115	385	1,542	3,217	2,728	947	189
138–139	11,767	3	1	1	8	24	37	93	125	511	1,769	3,841	3,523	1,248
140–141	13,234		2	1	2	6	12	47	52	145	453	1,754	4,230	4,009
142–143	12,721	2	1	3	6	4	10	22	51	68	134	426	1,781	3,888
144–145	11,563	4			4	4	5	14	35	72	89	166	562	1,505
146–147	8,466	1		1	7	8	9	7	1	31	76	105	195	391
148–149	5,778	4	1	1	4	10	5	11	11	5	27	59	122	146
150–151	3,334			1			4	7	5	9	11	9	38	28
152–153	2,017			1		1		2	3	8	5	3	5	8
154–155	1,023				1		1		5	13	6	4	4	12
156–157	545						1		1	5	10	7	6	5
158–159	245									2	6	11	7	4
160 and over	219						1	6	4	3	2	10	10	5
Number measured	96,439	21	47	136	373	710	1,422	2,653	4,222	6,257	8,161	9,994	11,691	11,547
Not measured	753													
Total	97,192													
Mean sternal notch ...cm		139.07	127.65	127.66	128.81	129.76	130.64	132.37	133.63	135.31	136.84	138.37	140.16	141.71

Height: Mean, 171.99 centimeters; standard deviation, 6.66±0.0102 centimeter. Sternal notch: Mean, 141.18 centimeters; standard deviation, 5.91±0.0091 centimeter. Correlation: 0.8567±0.0006.

and span, white troops, demobilization.

Height, in centimeters.																Mean height.
174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–210	*Cm.*
1		2	1	2	1		1									170.10
	1		1		1											158.39
	2	2		1			1									158.57
3	1	2	1				1									159.10
4	1	1		1												159.79
3	2	2				1	1									160.78
4		4			1	2										161.94
15	6	4	3	1		2	2				1					163.31
34	13	7	4	1	1	4	4									164.36
66	38	12	6	1	2		4	1		1						165.85
180	55	33	4	6	7	6	2	1	2	1	1					167.19
420	167	86	16	4	7	7	5	2	4		2				1	168.65
835	383	153	30	12	7	10	7	7	3		1	1			1	169.98
1,406	685	282	81	18	9	7	7	1	8	4	1				1	171.23
1,982	1,189	530	157	57	11	10	11	1	6	1	1	1				172.61
1,983	1,687	963	365	98	33	6	9	7	3	2	3					173.96
1,547	1,624	1,314	629	215	103	41	19	8	4	4	3					175.47
1,059	1,334	1,243	931	415	151	64	29	6	5		3	2				176.90
715	928	998	825	551	228	101	39	11	3	3	1	3				177.95
339	554	710	728	574	343	145	58	14	3	3	1	2	1			179.18
156	295	434	514	455	317	189	73	17	5			1				180.40
52	123	233	291	328	271	174	112	36	10	1	3		1			182.00
13	43	98	137	198	184	139	87	45	14	3	6					183.09
11	26	39	55	95	113	100	72	42	23	7	2	2			1	184.25
	8	12	23	45	64	65	54	28	18	2	1	1				185.12
4	4	12	8	23	26	33	28	23	10	9	1	3			1	185.09
			4	4	7	13	10	7	12	4	2	2	1			188.35
				1		9	3	2	1	3						188.61
1								2	6	1	4		1	2		190.00
10,833	9,169	7,176	4,814	3,106	1,887	1,128	639	261	140	49	37	18	4	2	5	
178.07	180.03	181.86	184.03	186.11	187.62	188.78	189.04	190.97	190.34	190.29	187.04	189.50	195.50	204.50	182.10	

and height of sternal notch, white troops, demobilization.

Height, in centimeters.																Mean height.
174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–210	*Cm.*
1																159.72
3		1	1	1			1									159.24
3	5	1		1												157.14
3	3	6	2			1										159.90
1	6	4	6	1		2	3	1								159.58
13	5	3	4	4	4	2	1	1								161.36
28	13	2	6	6	10	7	2			1						163.34
63	67	34	5	6	4	9	7	1	1	1	3			1	1	165.40
66	61	30	14	7	7	11	11	1			2	1			1	167.24
292	109	91	33	16	5	11	10	4	3	5	2		1		1	169.28
1,734	416	186	81	41	16	16	8	6	13	1		1			2	171.56
3,943	1,760	436	74	39	24	18	8	9	8	4	1	1				173.42
3,318	3,555	1,709	342	73	39	28	12	5	8	4	8	1	1			175.32
1,035	2,355	2,613	1,216	256	71	34	39	7	4		1	3				177.42
241	657	1,540	1,726	885	208	59	33	10	7	1	1	3	1			179.08
46	115	377	913	1,062	490	153	45	8	8	2	1	2				181.32
12	27	72	343	497	627	310	77	11		1	2	1	1			183.14
8	8	20	16	145	281	307	148	35	5	2	2					184.58
5	1	4	11	32	78	129	163	70	13	3		1				185.78
1	2	3		15	11	20	61	61	37	2	2					186.32
2	7	16	6	8	12	9	13	30	35	20	11	5	2	1	1	184.81
10,818	9,172	7,148	4,799	3,095	1,887	1,126	642	260	142	47	36	19	6	2	6	
143.12	144.61	146.14	148.01	149.65	151.18	151.82	152.63	154.50	153.46	152.24	149.83	150.60	150.83	147.50	141.83	

TABLE LXXXVI.—*Correlation between stature and height of pubic arch, white troops, demobilization.*

Pubic arch, in centimeters.	Total.	Height, in centimeters.																												Mean height
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–210	
																															Cm.
70–71	285		3	8	11	8	7	20	19	31	33	36	44	23	10	14	8	7	1	1	1										167.08
72–73	480	1	12	18	27	32	29	29	31	49	44	55	41	40	36	10	10	8	3	3	1	1									165.56
74–75	779	1	6	34	75	96	100	75	50	34	40	57	49	52	48	37	7	7	6	2		1	2								163.66
76–77	1,581		4	26	89	181	255	264	191	147	87	61	76	53	42	49	32	9	4	3	2	2		1		1				2	163.66
78–79	3,021	2	5	23	68	155	328	548	598	454	290	174	94	85	59	44	51	21	10	4	5	1	2								167.08
80–81	6,276	2	6	5	29	102	337	679	1,025	1,209	1,070	747	397	206	153	124	70	52	21	9	15	8	2	2		1	2	1	1	1	165.67
82–83	9,831	2	3	5	14	42	160	478	1,016	1,650	1,928	1,806	1,247	673	344	178	135	62	32	28	10	10	3	1	1	1	1			1	167.42
84–85	13,431	2	3	3	16	29	56	240	595	1,270	2,040	2,680	2,582	1,900	1,051	511	231	96	51	22	21	13	2	8	4	4		1			169.46
86–87	14,989	3	2	2	8	10	22	95	248	633	1,343	2,086	3,070	2,894	2,227	1,331	617	205	75	48	34	16	10	5	1	3				1	172.10
88–89	14,229	3	1	3	9	10	16	56	113	228	544	1,127	2,104	2,713	2,841	2,177	1,333	552	210	83	45	27	11	10	6	4	2			1	173.59
90–91	11,051	1		1		4	9	18	42	61	160	377	849	1,507	2,065	2,203	1,827	1,093	480	195	84	52	12	5	2	1	3				175.83
92–93	7,217	2		1		1	1	14	20	41	58	110	266	528	893	1,274	1,398	1,162	783	384	171	71	17	11	3	4	3	1			177.93
94–95	4,273	1			1	3	1		14	15	31	56	122	146	292	491	759	842	651	442	266	100	24	11		4				1	179.68
96–97	2,216	1			4	1	2	2	7	11	18	44	75	71	95	159	256	327	413	333	208	116	54	13	5		1				180.84
98–99	1,203			1	1	2	6	3	11	6	11	16	33	51	72	66	91	129	162	167	149	124	54	31	9	5	2	1			181.75
100–101	398								1	2	2	1	5	2	22	18	17	37	40	59	57	57	46	22	3	5	2				184.52
102–103	65														1	1		4	4	9	11	14	7	3	8	3					187.85
104–105	40										1			5	2			1	2	2	7	9	6	2	2				1		185.35
Number measured	91,365	21	45	130	352	676	1,329	2,521	3,981	5,841	7,700	9,433	11,054	10,949	10,253	8,687	6,842	4,614	2,948	1,794	1,087	622	252	125	44	36	16	4	2	7	
Not measured	5,827																														
Total	97,192																														
Mean pubic arch.....cm.		85.30	77.16	76.80	77.78	78.34	78.36	80.62	81.82	82.76	83.86	85.04	86.08	87.12	88.18	89.18	90.27	91.54	92.74	93.62	94.12	94.78	95.82	94.88	95.36	92.56	91.50	89.00	92.50	85.08	

Height: Mean, 172.02 centimeters; standard deviation, 6.67±0.011 centimeter. Pubic height: Mean, 86.82 centimeters; standard deviation, 5.05±0.008 centimeter. Correlation: 0.6960±0.0012.

TABLE LXXXVII.—*Correlation between stature and sitting height, colored troops, demobilization.*

Sitting height, in centimeters.	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199
75	9	1			1	1					1	1			1	2		1									
76–77	9		2			1			1	2		1	1				1										
78–79	43		1	2	1	5	3	5	8	3	7	1	4	2			1										
80–81	201		2	3	6	11	24	28	33	26	21	10	10	10	4	4	4	3	1		1						
82–83	522			6	6	22	29	43	76	83	70	60	49	33	16	13	8	2	1	1	1	1		1	1		
84–85	1,109		1	1	8	13	18	52	97	167	187	192	120	92	74	42	21	7	7	3		2	3	2			
86–87	1,515	1	1			2	9	22	75	122	153	228	231	209	200	110	85	37	13	3	4	1	3	1	4	1	
88–89	1,379		1	1	1		4	8	21	45	90	120	164	250	232	183	119	63	33	18	10	5	5	4	2		
90–91	930								1	10	24	37	96	112	139	151	118	102	63	34	21	11	3	3	2	1	2
92–93	462							1	1	1	7	7	20	29	59	61	85	64	50	43	18	10	3	2			1
94–95	170		1						1	2	1	1	5	2	16	14	22	26	30	24	10	7	5	1	1	1	
96–97	60										1		3	3	3	5	2	7	6	8	7	8	3	4			
98–99	22									1			2		1	1	4	1	3	4	2	1	1			1	
100–01	1												1														
102–03																											
104–05																											
106–07	1													1													
Number measured	6,433	2	9	13	23	55	87	159	314	462	562	658	706	743	745	586	470	313	207	138	74	46	26	18	10	4	3
Not measured	60																										
Total	6,493																										

Height: Mean, 171.99 centimeters; standard deviation, 6.90 ± 0.041 centimeter. Sitting height: Mean, 87.35 centimeter; standard deviation, 3.48 ± 0.021 centimeter. Correlation: 0.6088 ± 0.0053.

TABLE LXXXVIII.—*Correlation between stature and span, colored troops, demobilization.*

Span, in centimeters.	Total.	Height, in centimeters. 148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199
148–149	4	1															2			1							
150–151	4						1	2								1											
152–153	4			1		1					1								1								
154–155	4		1		1			1					1														
156–157	16		1	1	1	3	2	3		1	1	1				1					1						
158–159	15		1		1	4		3	4	2																	
160–161	36		1	1	2	6	5	4	4	4	4	3	1						1								
162–163	63		1	2	1	5	11	9	15	11	6	1	1														
164–165	99				5	10	8	14	26	18	5	9	2	1			1										
166–167	154		2		7	4	12	16	29	37	27	13	3	1	2							1					
168–169	182			4	3	4	9	25	17	37	43	17	14	2	5		1			1							
170–171	326			2		8	14	20	52	62	44	63	39	11	3	2	3		1			2					
172–173	398				2	3	14	27	58	67	61	77	41	28	12	4	2	1	1								
174–175	485			1		3	5	10	43	79	92	74	61	55	40	13	5	1		1			1			1	
176–177	477	1				1	3	12	28	55	77	71	71	63	56	26	9	2	1				1				
178–179	552		1			1	1	7	23	29	64	100	100	81	71	44	18	7	1	2					2		
180–181	586			1		1	1	6	12	35	51	83	103	106	82	52	28	14	5	1	1	1		1	1		1
182–183	593						2	1	5	19	41	75	99	114	111	55	35	19	8	2	2		2	2	1		
184–185	504							2		3	25	38	68	104	94	81	47	26	9	3		1	2	1			
186–187	494		1							3	8	24	60	78	98	89	67	41	9	10	2	1	1	1	1		
188–189	432					1				4	6	13	24	51	79	87	72	45	21	13	11	2	1	1	1		
190–191	318					1			1	1	5	1	11	29	55	56	58	37	28	19	6	6	2	2			
192–193	248										1	1	5	11	24	30	56	39	42	26	8	2	2	1			
194–195	186										1		1	9	8	28	29	41	33	18	9	4	2	2	1		
196–197	113											1		2	6	11	26	24	16	8	7	9	1		1		1
198–199	79								1	1	1		3	3	1	5	4	11	18	18	7	2	2	1		1	
200–201	53															1	6	6	8	8	13	5	3	2	1		
202–203	16																		4	2	3	2	2	1	1	1	
Number measured	6,441	2	9	13	23	56	88	162	318	468	564	665	708	749	747	586	469	314	207	133	70	38	22	15	10	3	2
Not measured	52																										
Total	6,493																										

Height: Mean ,171.89 centimeters; standard deviation ,6.82±0.0406 centimeter. Span: Mean ,180.76 centimeters; standard deviation ,8.59±0.0510 centimeter. Correlation: 0.7892±0.0034.

TABLE LXXXIX.—*Correlation between stature and height of sternal notch, colored troops, demobilization.*

Height of sternal notch, in centimeters.	Total.	Stature, in centimeters.																									
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199
120-121	2		2																								
122-123	4	1	2							1																	
124-125	10		1	2	6	1																					
126-127	27			5	7	8	4		1	1					1												
128-129	59		1	1	5	16	16	7	2	2	4	1	1				1	1	1								
130-131	95			2	5	15	21	28	12	5	2	2		1	1				1								
132-133	232		2			5	28	57	77	33	12	8	3		3		1		2		1						
134-135	393			1		1	11	41	115	147	52	11	3	2	2	5	1				1						
136-137	533					2	1	17	72	152	174	82	17		5	5	4			1		1					
138-139	669			1		1	2	1	24	78	203	225	94	23	6	3	2		2		1		2		1		
140-141	810	1				1	1	4	5	29	79	210	278	130	39	13	6	3		1	2	3	3		2		
142-143	877			1		1	1	2	4	5	25	89	203	293	175	46	13	4	2	2	1	1	2	5	1	1	
144-145	862					1	1	1	3	7	4	27	74	210	302	160	44	10	5	7		1		3	2		
146-147	648		1			2	1	2	1	4	3	4	24	69	153	208	134	34	4	2	1				1		
148-149	496					2			1	1	4	2	6	16	44	120	166	99	26	4		3			1		1
150-151	293										1		1	3	12	18	73	91	69	16	5	2	1				1
152-153	193						1	1							1	2	19	54	58	40	12	3	1		1		
154-155	133									1				2		2	3	16	31	41	27	9		1			
156-157	67								1		1				1			1	3	17	19	12	8	3		1	
158-159	29										1						1	1	3	5	2	7	6	2	1		
160 and over	22																1	1		2	3	4	4	4		2	1
Number measured	6,454	2	9	13	23	56	88	161	318	466	565	661	704	749	745	582	469	315	207	138	75	46	27	18	10	4	3
Not measured	39																										
Total	6,493																										

Height: Mean, 171.97 centimeters; standard deviation, 6.91±0.0410 centimeter. Sternal notch: Mean, 142.39 centimeters; standard deviation, 6.05±0.0359 centimeter. Correlation: 0.8582±0.0022.

TABLE XC.—*Correlation between stature and height of pubic arch, colored troops, demobilization.*

Pubic height, in centimeters.	Total.	Stature, in centimeters.																									
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199
70–71	6						1		1	1		2	1														
72–73	18		1		1		2	1	5		2			1	2		1		1	1							
74–75	27	1	2	1	3	6	1	3	4	3		2	1														
76–77	47			2	2	5	7	4	4	6	3	7	6	1													
78–79	107		1	3	5	12	5	18	12	13	12	13	9	2	2												
80–81	229		1	2	7	7	22	28	40	30	27	16	14	9	12	6	5		2		1						
82–83	370		1	1	1	12	18	36	51	67	59	39	29	21	11	8	8	2	1		1		3		1		
84–85	558			1		6	13	35	80	117	102	80	42	25	21	14	12	4	3	1	1		1				
86–87	782	1			1	1	11	14	58	97	131	145	120	88	46	33	11	10	8	5			1		1		
88–89	939			1	1	3	3	10	36	64	123	157	177	148	125	44	23	8	5	2	2	2	2	1	1	1	
90–91	959		1				1	6	7	30	56	112	164	197	162	107	62	23	14	5	3	3	1	4	1		
92–93	800					1		1	5	10	16	37	84	140	177	137	99	53	24	8	1	4	1	2			
94–95	606			1				1	3	4	6	14	28	58	115	135	114	72	25	22	5				3		
96–97	406								1		3	7	7	30	34	59	75	78	50	37	15	6	1	2	1		
98–99	241						1		1	1	4	1	2	5	7	16	36	37	47	36	22	14	6	2	1	1	1
100–101	92										1	1			3	2	7	12	19	14	17	7	5	3		1	
102–103	20																2	3	3	3	3	2		2	1		1
104–105	13																				3	6	3	1			
Number measured	6,220	2	7	12	21	53	85	157	308	443	545	633	684	725	717	561	455	302	202	134	74	44	24	17	10	3	2
Not measured	273																										
Total	6,493																										

Height: Mean, 171.98 centimeters; standard deviation, 6.88±0.142 centimeter. Height of pubic arch: Mean, 89.42 centimeters; standard deviation, 5.27±0.032 centimeter. Correlation: 0.6948±0.0044.

TABLE XCI.—*Correlation between height and knee height, colored troops, demobilization.*

Knee height, in centimeters.	Total.	Height, in centimeters.																									
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199
35 and under	16				1		3		1	2	3	2	2		1	1											
36–37	44			1	1		2		3	7	12	8	5			1	2	1								1	
38–39	74		2	1		3	4	3	1	7	3	11	7	9	14	3	5	1									
40–41	178			1	5	7	5	13	18	16	22	15	14	19	11	11	9	2	8		1	1					
42–43	403	1		4	5	15	25	33	55	58	48	38	28	28	19	16	11	5	8	3	1		2				
44–45	934		3	3	4	12	24	52	104	109	114	132	136	84	58	36	19	18	8	8	4	1	2	2	1		
46–47	1,404			2	1	6	9	31	66	121	166	187	184	178	172	107	78	37	26	12	10	2	3	2	3		1
48–49	1,249		1	1	1	6	2	10	29	60	91	123	157	196	196	138	107	64	31	23	7	1	2	3			
50–51	805	1					3	2	3	9	17	33	60	121	129	135	114	84	53	25	8	6	1				1
52–53	388							1	2	8	10	18	14	24	43	42	58	56	40	32	18	13	3	4	2		
54–55	151									2	4	5	7	13	7	16	14	17	16	14	12	15	5	1		2	1
56–57	52										1	1	6	6	5	5	4	2	1	3	9	2	6	1			
58–59	21		1									2		4	2	1	4		1	2	4						
60–61	4														1	1		1			1						
62 and over	2										1				1												
Number measured	5,725	2	7	13	18	49	77	145	282	399	492	575	620	682	659	513	425	288	192	122	75	41	24	13	6	3	3
Not measured	768																										
Total	6,493																										

Height: Mean, 172.05 centimeters; standard deviation, 6.90±0.0435 centimeter. Knee height: Mean, 47.26 centimeters; standard deviation, 3.64±0.0229 centimeter. Correlation: 0.4763±0.0069.

TABLE XCII.—*Correlation between leg length and knee height, colored troops, demobilization.*

Knee height, in centimeters.	Total.	Leg length, in centimeters.														
		60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89
38–39	74	1	5	4	6	8	14	13	13	8	2					
40–41	177	2	8	6	16	15	37	24	25	24	13	4	1	1		1
42–43	402	5	10	19	49	69	78	61	41	36	22	11	1			
44–45	928	3	6	32	58	114	174	159	177	126	52	22	3	2		
46–47	1,386	3	8	14	47	111	220	259	253	229	136	68	25	8	4	1
48–49	1,245	2	2	6	19	48	158	226	236	221	173	92	42	13	6	1
50–51	802			3	8	14	52	79	146	193	139	101	42	19	4	2
52–53	382			2	3	8	26	25	38	58	70	72	44	17	9	10
54–55	150			2	1	1	12	11	16	16	19	18	27	13	11	3
56–57	49			1			5	4	10	6	5	2	7	5	2	2
Number measured	5,595	16	39	89	207	388	776	861	955	917	631	390	192	78	36	20
Not measured	898															
Total	6,493															

Leg length: Mean, 74.38 centimeters; standard deviation, 4.59±0.029 centimeter. Knee height: Mean, 47.32 centimeters; standard deviation, 3.37± 0.0229 centimeter. Correlation: 0.4305±0.0073.

TABLE XCIII.—*Correlation between chest circumference (rest) and weight, colored troops, demobilization.*

Weight, in pounds.	Total.	Chest circumference, in centimeters.								
		68–73	74–77	78–81	82–85	86–89	90–93	94–97	98–101	102–109
100–109	10	1	3	3				2	1	
110–119	79	1	6	25	40	6		1		
120–129	289	3	8	65	144	55	11	2	1	
130–139	602	2	2	47	253	250	44	2	1	1
140–149	757	4		23	171	386	153	19	1	
150–159	735	1	1	14	75	321	267	50	6	
160–169	434	1		4	15	127	204	73	10	
170–179	228		1	2	7	28	91	81	18	
180–189	110				1	10	31	49	16	3
190–199	52		1	1	1	1	7	20	16	5
200 and over	23						1	5	10	7
Number measured	3,319	13	22	184	707	1,184	809	304	80	16
Not measured	3,036									
Total	6,355									

Weight: Mean, 149.53 pounds; standard deviation, 17.53±0.045 pound. Chest circumference (rest): Mean, 88.14 centimeters; standard deviation, 4.79±0.040 centimeter. Correlation: 0.6559±0.0067.

TABLE XCIV.—*Correlation between chest circumference (rest) and neck circumference, colored troops, demobilization.*

Neck circumference, in centimeters.	Total.	Chest circumference, in centimeters.								
		73 and under.	74–77	78–81	82–85	86–89	90–93	94–97	98–101	102–107
29	1					1				
30	16			2	2	4	7	1		
31	14		1	3	6	3	1			
32	61		6	17	24	12	2			
33	177	2	15	42	69	38	10	1		
34	519	2	8	103	218	137	45	5	1	
35	1,074	6	12	87	400	403	146	17	3	
36	1,474	3	9	91	380	624	295	65	7	
37	1,415	1	2	32	194	589	423	152	22	
38	920	1	3	11	89	280	338	163	29	6
39	398	1	1	4	23	80	131	120	26	12
40	161				6	19	46	52	26	12
41	36				1	2	10	11	11	1
42	11						1	3	5	2
43	2						1		1	
44	1								1	
Number measured	6,280	16	57	392	1,412	2,192	1,456	590	132	33
Not measured	75									
Total	6,355									

Chest circumference (rest): Mean, 87.97 centimeters; standard deviation, 4.84±0.029 centimeter. Neck circumference: Mean, 36.37 centimeters; standard deviation, 1.72±0.010 centimeter. Correlation: 0.5172±0.0062.

TABLE XCV.—*Correlation between chest circumference (rest) and transverse pelvis, colored troops, demobilization.*

Transverse pelvis, in centimeters.	Total.	Chest circumference, in centimeters.								
		68-73	74-77	78-81	82-85	86-89	90-93	94-97	98-101	102-109
20	8			1	1	3	2	1		
21	22			3	7	8	3		1	
22	14		2	1	5	6				
23	35	1	2	5	14	10	3			
24	125	3	10	15	50	30	11	6		
25	331	1	5	66	114	100	39	5	1	
26	744	3	7	94	248	274	96	19	3	
27	1,003	5	12	59	308	369	198	45	7	
28	1,128	2	7	59	245	462	258	84	11	
29	999	2	5	37	185	342	275	132	20	1
30	708	1	3	27	101	241	213	96	22	4
31	530	1	1	12	70	174	161	83	22	6
32	342		2	6	42	96	115	58	19	4
33	158		1	5	15	41	46	29	14	7
34	67	1		2	5	11	23	11	9	5
35	32			1	1	5	11	8	3	3
36	19				2	7	4	5		1
37	8				2	2	1	2		1
38	22			1	6	9	3	2	1	
39	17				3	7	5	1	1	
40	7				2	2	1	2		
41	4					3		1		
42 and over	22			1	3	7	6	2	2	1
Number measured	6,345	20	57	395	1,429	2,209	1,474	592	136	33
Not measured	10									
Total	6,355									

Chest circumference (rest): Mean, 87.95 centimeters; standard deviation, 4.86±0.029 centimeter. Transverse pelvis: Mean, 28.54 centimeters; standard deviation, 2.64±0.016 centimeter. Correlation: 0.3297±0.0075.

TABLE XCVI.—*Correlation between chest transverse and chest antero-posterior, colored troops, demobilization.*

Chest, antero-posterior, in centimeters.	Total.	Chest, transverse, in centimeters.													
		18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34-35	36-37	38-39	40-41	42-43	44-45
14-15	3					2		1							
16-17	23				2	5	13	3							
18-19	777	1	6	4	44	202	330	150	36	2	1	1			
20-21	3,116		24	16	98	575	1,318	842	211	22	3	5	1		1
22-23	2,090		9	13	49	244	766	704	237	50	9	9			
24-25	357				5	26	100	132	73	19				1	1
26-27	50			1		1	13	17	9	8	1				
28-29	16			1		1	4	7	3						
30-31	13				1	1	3	4	3	1					
32-33	2							1	1						
34-35	3						1	1					1		
Numbered measured	6,450	1	39	35	199	1,057	2,548	1,862	573	102	14	15	2	1	2
Not measured	43														
Total	6,493														

Chest, transverse: Mean, 29.05 centimeters standard deviation, 2.26±0.013 centimeter. Chest, antero-posterior: Mean, 21.21 centimeters; standard deviation, 1.74±0.010 centimeter. Correlation: 0.2267±0.0080.

TABLE XCVII.—*Correlation between waist circumference and transverse diameter of pelvis, colored troops, demobilization.*

Transverse pelvis, in centimeters.	Total.	Waist circumference, in centimeters.										
		63 and under.	64-67	68-71	72-75	76-79	80-83	84-87	88-91	92-95	96-99	100-109
20	5			1	2	2						
21	18			4	4	9	1					
22	14	2		1	5	6						
23	35		5	13	8	7		2				
24	126	3	8	33	43	33	4	1	1			
25	337	2	10	94	129	83	14	4	1			
26	752	3	19	137	289	235	52	14	2		1	
27	1,017	3	11	104	342	374	147	28	6	2		
28	1,146	5	7	82	267	449	244	68	16	5	2	1
29	1,014	5	6	43	169	339	282	118	41	5	6	
30	720	3	2	26	116	238	182	97	39	9	6	2
31	539	4	1	18	62	151	160	82	39	12	6	4
32	343	1	1	12	39	87	86	65	28	14	7	3
33	158	1	1	3	15	32	47	29	16	5	3	6
34	68	1		3	3	14	15	12	10	4	1	5
35	32			2	1	4	11	6	1	1	1	5
36	20				5	5	2	3	3		2	
37	5					1		1		2	1	
38	4							3	1			
39 and over	1								1			
Number measured	6,354	33	71	576	1,499	2,069	1,247	533	205	59	36	26
Not measured	91											
Total	6,445											

Waist circumference: Mean, 77.82 centimeters; standard deviation, 5.71±0.034 centimeter. Transverse pelvis: Mean, 28.42 centimeters; standard deviation, 2.35±0.014 centimeter. Correlation: 0.4456±0.0068.

TABLE XCVIII.—*Correlation between arm length and forearm, colored troops, demobilization.*

Forearm, in centimeters.	Total.	Arm length, in centimeters.															
		68–69	70–71	72–73	74–75	76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99
20	13				3	1	1	1	2	3	1	1					
21	12				1	5	1	1	1	1	2						
22	5						1	1						3			
23	17	2	4	2	3	1	1				1	1	2				
24	54	2	10	13	10	9	6	2	1		1						
25	235	6	23	54	51	42	40	12	4	1		1	1				
26	613	3	26	72	116	151	138	59	30	6	8	3	1				
27	1,071	2	16	55	141	206	267	176	120	52	22	9	4	1			
28	1,206		4	15	57	133	265	301	214	123	58	30	5	1			
29	1,060		3	6	12	54	136	211	245	193	121	52	17	8			2
30	692	1	2	1	3	9	35	117	138	159	117	62	39	4	2	2	1
31	317				1	2	9	28	43	58	75	53	24	19	2	2	1
32	115						2	3	12	26	22	19	9	10	9	2	1
33	35							1		4	6	7	8	4	4	1	
34	18				1			2				6	3	1	4	1	
35	8			2					1		1		4				
36	8						3	2	1		2						
37	9						3	1	3		1			1			
38	15						1	2	1	6	2	2			1		
39	11					1		1	6		1		2				
Number measured	5,514	16	88	220	399	614	909	921	822	632	441	246	119	52	22	8	5
Not measured	979																
Total	6,493																

Arm length: Mean, 80.79 centimeters; standard deviation, 4.76 ± 0.0306 centimeter. Forearm: Mean, 28.20 centimeter; standard deviation, 2.03 ± 0.013 centimeter. Correlation: 0.5782 ± 0.0060.

TABLE XCIX.—*Correlation between chest circumference and sitting height, white troops, demobilization.*

[Basis of construction of blouse groups shown by heavy lines; circled symbols are the "blouse" group designations. For relative frequency of "groups" see Table 121.]

Chest circumference, in centimeters.	Total.	Sitting height, in centimeters. 76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99	100–101	102–103	104–105	106–107	Mean sitting height.
		(1)																*Cm.*
68–69	18			1		3	2	5	4	1		2						88.72
70–71	69			2	1	2	5	16	21	12	8	2						90.15
72–73	108			2	4	11	21	20	30	14	4	2						88.78
74–75	165				5	19	34	40	18	27	15	5	2					89.23
76–77	484		3	4	26	61	99	121	90	46	21	9	3	1				88.38
		(2B)					(2M)			(2L)								
78–79	1,354		4	17	52	131	292	349	277	154	56	12	10					88.58
80–81	3,746	1	4	37	138	374	707	897	820	482	200	63	21	2				88.88
		(3B)					(3M)			(3L)								
82–83	7,259		8	63	236	608	1,198	1,757	1,660	1,057	458	140	65	7		2		89.24
84–85	11,688	8	13	89	261	791	1,751	2,735	2,915	1,812	885	289	117	19	1	1	1	89.61
		(4B)						(4M)			(4L)							
86–87	14,576	5	11	106	258	870	1,873	3,081	3,616	2,642	1,431	483	176	21	1		2	90.05
88–89	16,172	9	11	89	232	742	1,760	3,196	4,114	3,314	1,740	708	209	41	6		1	90.45
		(5B)						(5M)			(5L)							
90–91	13,702	5	9	67	171	572	1,266	2,523	3,427	2,895	1,737	744	233	45	4	3	1	90.78
92–93	10,553	6	5	55	104	372	877	1,697	2,613	2,416	1,489	655	214	44	3	2	1	91,10
		(6B)						(6M)				(6L)						
94–95	7,057	2	4	34	59	185	517	1,121	1,701	1,630	1,084	505	171	37	6		1	91.37
96–97	4,184	3	2	16	32	111	254	590	977	1,031	667	342	124	26	8		1	91.65
		(7B)							(7M)			(7L)						
98–99	2,522	1	1	7	12	54	146	327	540	626	452	243	89	16	8			91.98
100–101	1,100			5	7	23	44	148	236	250	228	103	42	11	1	2		92.14
		(8)																
102–103	549	1		1	2	12	23	62	109	129	116	68	20	4	1	1		92.37
104–105	256				3		8	32	56	69	50	25	11	1	1			92.37
		(9)																
106–107	141	1				4	4	12	31	30	31	19	9					92.57
108–109	82					1	5	8	20	13	15	12	7	1				92.72
						(10)												
110–111	45						3	5	11	9	9	4	3	1				92.50
112–113	19					1		3	4	2	2	6	1					92.82
114–115	8						1			4	3							92.50
116–117	10								5	1	3		1					92.70

Number measured	95,867	42	75	595	1,603	4,947	10,890	18,745	23,295	18,666	10,704	4,411	1,528	277	40	11	8	90.42
Not measured	1,289	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	97,156	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean chest circumference, cm.	......	89.98	86.61	87.29	86.37	86.80	87.14	87.93	88.80	89.63	90.39	91.16	91.16	91.80	94.40	91.77	90.00	......

Sitting height: Mean, 90.41 centimeters; standard deviation, 3.45±0.005 centimeter. Chest circumference (rest): 88.79 centimeters; standard deviation, 5.09±0.0078 centimeter. Correlation: 0.2415±0.0021 centimeter.

TABLE C.—*Association between blouse groups and weight, white troops, demobilization.*

Weight, in pounds.	Total.	Chest circumference (rest), in centimeters.																						
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
100–109	418	16	68	71	90	5	63	51	4	16	8	......	3	5	2	......	7	1	......	3	......	4	1	......
110–119	3,365	28	183	298	714	66	456	888	65	323	210	13	42	30	7	5	18	2	1	5	3	4	2	2
120–129	10,697	30	146	188	1,134	248	705	3,433	592	1,462	1,808	118	335	348	24	33	55	......	11	15	5	2	2	3
130–139	17,959	27	53	54	531	271	367	3,689	1,490	1,986	5,325	576	962	1,913	175	168	293	11	33	25	3	3	1	3
140–149	18,892	23	30	13	169	129	117	1,344	1,254	914	5,847	1,350	935	4,272	781	323	1,145	44	81	108	3	9	......	1
150–159	14,010	19	28	9	60	80	32	342	434	277	2,586	1,247	462	3,984	1,387	298	2,184	131	157	260	27	32	3	1
160–169	8,207	10	19	3	20	22	5	92	144	54	548	550	149	1,828	1,252	158	2,180	298	181	525	71	87	10	1
170–179	3,747	5	4	2	16	10	4	37	39	19	125	117	32	420	503	50	1,108	300	105	541	114	172	23	1
180–189	1,488	1	1	2	3	4	......	9	8	1	33	32	12	56	110	18	341	153	56	338	102	166	40	2
190–199	545	......	3	1	2	......	......	7	3	3	6	4	4	21	28	......	56	57	15	101	67	106	50	11
200 and over	348	1	1	......	......	......	......	1	1	......	......	3	......	2	5	......	12	14	4	48	43	97	69	47
Number measured	79,706	160	536	641	2,739	835	1,749	9,893	4,034	5,055	16,496	4,010	2,936	12,879	4,274	1,053	7,399	1,011	644	1,969	438	682	201	72
Not measured	16,168	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	95,874	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean weight...lbs.	......	129.24		119.94	125.77	134.71	125.39	131.65	139.56	133.66	141.24	149.52	141.62	149.56	157.97	150.07	159.50	170.09	161.57	169.87	178.52	180.61	189.33	191.17
Blouse group designation	......	1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Weight: Mean, 144.67 pounds.

TABLE CI.—*Association between blouse groups and shoulder width, white troops, demobilization.*

Shoulder width, in centimeters.	Total.	Chest circumference (rest), in centimeters.																						
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
30	425	1	9	10	46	8	18	85	21	34	78	10	5	51	11	2	26	3	1	2	......	3	1	......
31	136	1	1	2	10	3	7	25	8	5	31	6	8	14	1	2	6	3	2	1	......	......	......	......
32	112	......	......	......	7	......	4	14	6	9	20	9	11	11	7	1	7	......	2	2	......	2	......	......
33	95	......	......	1	7	1	3	16	3	7	23	6	......	9	7	4	5	......	1	2	......	......	......	......
34	129	......	4	2	12	2	10	23	8	3	15	7	5	17	4	2	8	......	1	6	......	......	......	......
35	144	2	6	4	20	2	7	22	6	8	21	3	4	17	8	2	7	1	1	1	1	1	......	......
36	419	7	35	25	70	9	33	100	19	32	40	5	4	11	4	......	13	......	2	6	1	1	2	......
37	1,168	11	58	65	179	37	94	320	70	91	147	13	16	42	3	......	15	1	......	4	1	1	......	......
38	3,154	15	111	149	450	70	194	833	201	275	511	79	54	141	18	7	30	3	3	6	3	1	......	......
39	6,726	25	117	168	667	137	386	1,707	444	619	1,384	191	175	477	75	28	92	3	10	10	3	4	2	2
40	12,392	31	115	166	713	196	478	2,554	845	1,137	2,930	478	451	1,427	277	82	374	36	33	55	7	6	1	......
41	16,928	29	73	95	575	204	418	2,741	1,144	1,351	4,272	829	643	2,594	612	172	865	69	59	130	18	31	3	1
42	17,790	22	45	44	309	171	240	1,929	955	1,155	4,498	1,100	759	3,320	977	233	1,425	131	113	241	57	53	10	3
43	14,948	24	28	11	142	76	96	931	623	710	3,203	985	668	3,278	1,193	245	1,820	211	148	387	73	76	15	5
44	10,005	12	15	4	38	42	33	350	300	319	1,660	605	422	2,253	908	210	1,747	243	147	453	91	116	28	9
45	5,713	7	10	2	24	19	15	111	109	105	644	289	171	1,168	633	120	1,223	245	108	398	96	168	37	11
46	2,800	3	3	......	11	8	6	55	45	32	185	114	60	425	265	70	702	147	80	332	69	136	39	13
47	1,121	......	......	2	6	3	4	25	14	11	63	35	20	116	86	24	245	76	35	171	52	96	27	10
48	537	......	......	1	10	1	3	27	16	10	37	17	11	41	30	6	84	22	14	72	29	68	28	10
49	266	......	......	2	14	1	4	26	12	3	29	6	4	30	13	2	30	11	7	15	8	22	17	10
50 and over	159	1	2	1	3	2	3	16	10	6	22	3	2	10	6	1	8	4	1	16	4	17	13	8
Number measured	95,167	191	632	754	3,313	992	2,056	11,910	4,859	5,922	19,813	4,790	3,493	15,452	5,138	1,213	8,732	1,209	768	2,310	513	802	223	82
Not measured	707	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	95,874	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean shoulder width......cm	......	39.64		39.17	39.71	40.59	39.99	40.52	41.20	41.00	41.54	42.14	41.93	42.33	42.94	42.75	43.26	43.98	43.49	44.10	44.48	44.99	45.72	46.21
Blouse group designation	......	1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Shoulder width: Mean, 41.81 centimeters; standard deviation, 2.41±0.037 centimeter.

TABLE CII.—*Association between blouse groups and chest transverse diameter, white troops, demobilization.*

Chest, transverse, in centimeters.	Total.	Chest circumference (rest), in centimeters.																						
		68-73	74-77	78-81 s.	78-81 m.	78-81 l.	82-85 s.	82-85 m.	82-85 l.	86-89 s.	86-89 m.	86-89 l.	90-93 s.	90-93 m.	90-93 l.	94-97 s.	94-97 m.	94-97 l.	98-101 s.	98-101 m.	98-101 l.	102-105	106-109	110 and over.
19	19		5		1			3		2	1	1		2	1	1						1		1
20	154		1	2	7	2	3	32	9	7	31	9	1	20	11	1	15	1	1	1				
21	305	1	2	2	16	3	8	42	19	16	64	13	8	43	13	7	32	4	1	8	1	2		
22	251	2	4	2	10	5	2	28	8	15	47	13	3	47	18	3	24	4	3	5	3	5		
23	311	1	14	10	32	8	11	51	17	12	46	20	10	36	6	3	21	1	1	6	1	1	3	
24	682	9	58	40	118	24	32	131	41	26	75	18	9	37	11	4	30	3	4	4	2	5		1
25	2,482	28	128	107	385	82	166	665	174	130	361	71	32	84	25	5	29	1		2	4	1	1	1
26	6,381	24	134	179	733	169	342	1,670	552	475	1,190	206	114	372	74	17	92	7	9	15	4	2	1	
27	11,915	19	101	179	782	222	510	2,669	923	1,052	2,831	550	291	1,143	267	50	242	21	17	31	8	6		1
28	17,469	28	75	131	590	181	474	2,786	1,152	1,475	4,527	977	656	2,527	720	144	762	78	48	110	19	8	1	
29	18,618	30	45	64	328	135	256	2,012	918	1,281	4,529	1,125	838	3,611	1,107	233	1,500	177	89	251	56	30	3	
30	15,596	24	38	24	191	86	153	1,052	603	826	3,241	862	739	3,354	1,172	275	1,954	254	135	431	91	85	5	1
31	10,232	12	22	8	65	36	60	454	236	360	1,701	479	409	2,264	876	238	1,825	265	182	495	88	132	24	1
32	5,705	13	9	7	23	22	23	174	120	142	709	242	238	1,149	458	123	1,176	179	140	443	94	169	46	6
33	2,668	3	4	2	16	3	4	64	28	57	261	99	86	436	207	72	609	115	78	234	68	169	45	8
34	1,204	1	3		4	1	2	29	16	27	93	46	26	166	93	22	245	54	37	152	39	87	36	25
35	566		2	1	5	3	4	12	9	8	37	15	11	79	44	6	106	29	14	66	19	51	33	12
36	320		2		7	3	3	21	9	8	39	19	10	31	18	5	41	8	8	34	10	27	10	7
37	206				3	3	5	19	8	7	41	9	5	27	8	4	18	3	4	9	2	15	7	9
38	160				4	4	1	16	7	7	28	8	5	29	7	1	14	3	1	8	1	5	5	6
39	147				4			12	11	17	27	9	11	24	8	2	11	3		3	3		1	1
40	55				1			2	3		15	1	1	12	3		7	3		2	1	2		2
41	29				1			2	2		3	2	2	8	4		2	1		1		1		
42 and over	115				5			15	2	6	27	3	1	22	3	1	11	1	2	13		1	2	
Number measured	95,590	195	647	758	3,331	992	2,059	11,961	4,867	5,956	19,924	4,797	3,506	15,523	5,154	1,217	8,766	1,215	774	2,324	514	805	223	82
Not measured	284																							
Total	95,874																							
Mean chest transverse, cm.		29.96		26.77	27.14	27.62	27.52	27.84	28.20	28.46	28.76	29.05	29.35	29.53	29.83	30.00	30.35	30.80	30.87	31.18	31.25	32.17	33.17	34.32
Blouse group designation		1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Chest, transverse: Mean, 29.01 centimeters.

TABLE CIII.—*Association between blouse groups and chest diameter, antero-posterior, white troops, demobilization.*

Chest antero-posterior, in centimeters.	Total.	Chest circumference (rest), in centimeters.																						
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
14	6	......	......	......	1	......	......	1	2	......	1	......	......	1	......	......	......	......	......	......	......	......	......	......
15	16	......	......	3	3	......	1	2	......	1	2	......	......	......	1	......	......	......	......	......	......	1	1	1
16	57	2	12	2	13	......	......	12	5	3	6	......	......	1	1	......	......	......	......	......	......	......	......	......
17	317	6	40	18	58	20	11	63	30	14	32	9	1	7	5	......	1	1	1	......	......	......	......	......
18	1,707	19	89	73	297	65	101	457	141	84	243	44	19	39	18	2	11	......	1	2	2	......	......	......
19	6,829	39	177	210	816	192	345	1,741	619	453	1,291	291	86	361	113	13	65	2	6	8	1	......	......	......
20	16,628	29	153	235	1,047	262	635	3,542	1,382	1,336	4,063	865	422	1,568	473	72	418	45	18	52	4	7	......	......
21	23,573	42	76	135	632	241	541	3,372	1,354	1,845	6,168	1,364	903	3,936	1,135	200	1,213	144	57	145	37	24	3	6
22	22,187	22	45	51	285	107	298	1,876	850	1,397	4,979	1,268	1,071	4,722	1,569	309	2,346	309	151	390	74	61	5	2
23	13,511	21	27	15	94	69	84	578	302	564	2,126	621	646	3,113	1,087	352	2,396	348	172	625	141	117	11	2
24	6,244	5	10	3	32	20	16	161	106	149	625	222	249	1,225	488	169	1,445	216	186	582	118	190	25	2
25	2,461	3	4	3	11	6	6	42	31	43	152	62	56	342	163	67	579	102	106	330	81	211	51	10
26	872	2	......	1	13	5	3	25	12	14	64	16	19	84	44	11	150	23	44	111	34	116	71	10
27	396	2	2	3	6	3	6	21	5	8	34	10	11	34	10	7	46	10	14	40	10	55	39	20
28	220	......	3	1	6	1	3	9	10	8	28	8	8	30	11	5	23	3	6	13	4	13	12	15
29	202	1	2	1	5	2	6	26	7	9	39	6	5	18	12	8	18	3	5	11	2	4	5	7
30	119	......	......	1	4	2	2	14	3	7	29	5	7	8	5	1	19	......	4	2	1	2	......	3
31	57	......	......	......	......	......	1	3	5	2	13	2	2	6	8	1	3	2	2	3	1	......	......	3
32	85	......	......	......	......	......	1	8	1	6	14	7	3	19	5	......	13	3	1	2	1	......	......	1
33	58	......	......	......	......	1	......	3	......	3	10	2	......	9	5	......	14	3	......	3	3	2	......	......
34	16	......	......	......	......	......	......	......	......	1	2	......	1	2	2	......	4	2	......	......	1	1	......	......
35 and over	29	......	......	1	......	......	3	1	1	6	3	1	2	3	2	......	4	1	......	......	......	1	......	......
Number measured	95,590	193	640	756	3,323	996	2,063	11,957	4,866	5,953	19,924	4,803	3,511	15,528	5,157	1,217	8,768	1,217	774	2,319	515	805	223	82
Not measured	284	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	95,874	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean chest antero-posterior diameter, cm	......	19.95		19.93	20.08	20.50	20.54	20.65	20.80	20.82	21.30	21.46	21.88	21.97	22.13	22.56	22.73	22.94	23.45	23.46	23.67	24.48	25.54	26.43
Blouse group designation	......	1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Chest antero-posterior diameter: Mean, 21.57 centimeters.

TABLE CIV.—*Association between blouse groups and transverse pelvic diameter, white troops, demobilization.*

Transverse pelvic diameter, in centimeters.	Total.	Chest circumference (rest), in centimeters.																						
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
19 and under	3								1	1														1
20	80				1	1	4	21	6	4	13	2	5	11	2	1	7	1	1					
21	216	5	3	2	19	3	4	42	9	8	46	8	15	30	2	2	12	1		3	1	1		
22	335	2	6	9	30	14	13	63	22	23	64	11	5	36	11	3	12	1		5	2	2	1	
23	734	6	26	19	66	15	40	167	49	51	124	28	14	52	30	6	26	5	1	4	3	1	1	
24	1,480	5	24	45	123	30	77	312	106	127	326	62	26	124	31	4	40	4	2	7	1	4		
25	3,235	8	50	73	291	45	175	714	224	272	682	112	96	299	66	10	86	10	5	12	1	3	1	
26	6,112	19	98	124	432	97	305	1,190	363	559	1,316	238	219	704	144	43	195	9	10	41	4	1	1	
27	9,588	20	116	141	552	133	350	1,850	517	881	2,160	356	378	1,222	269	78	419	39	31	55	11	9		1
28	14,419	34	103	135	609	154	413	2,366	772	1,230	3,248	645	621	2,215	551	144	868	78	60	126	25	21		1
29	15,817	34	65	77	452	149	257	1,879	841	999	3,725	750	692	2,907	765	232	1,401	136	103	245	54	48	4	2
30	13,885	28	52	67	323	123	161	1,321	668	693	2,951	798	532	2,654	883	210	1,557	208	135	347	69	90	15	
31	10,014	13	32	32	177	90	112	781	476	435	1,901	574	350	1,849	754	165	1,327	195	133	377	97	109	29	6
32	7,243	8	22	12	106	57	70	544	317	277	1,352	395	246	1,320	567	132	975	162	102	327	67	147	31	7
33	5,069	6	23	5	53	31	24	303	240	163	912	323	154	923	430	88	705	130	77	269	55	105	45	5
34	2,956	4	7	1	18	23	12	133	100	58	429	216	65	542	285	36	479	99	46	204	50	110	27	12
35	1,676	3	6	3	20	11	6	42	49	35	197	120	28	254	199	27	307	69	31	130	30	68	24	17
36	828		4	4	4	3	8	46	22	36	89	52	14	96	73	15	147	30	17	83	18	38	18	11
37	448		1	2	11	2	8	34	13	23	67	18	14	72	20	3	48	15	6	37	15	25	9	5
38	365			1	8	4	4	45	20	16	87	24	9	44	18	4	36	7	3	18	3	4	7	3
39	364		3	2	9	2	4	35	23	22	94	21	7	47	16	6	40	1	4	9	3	7	4	5
40	202		1	1	7	2	6	23	15	13	40	11	2	35	14	3	16	2		2	1	4		4
41	79		1		1			10		4	13	11		12	8		9	3	1	2	1	2	1	
42 and over	331			2	13	2	8	27	6	23	66	11	16	55	11	5	44	5	4	17	3	6	5	2
Number measured	95,479	195	643	757	3,325	991	2,061	11,948	4,859	5,953	19,902	4,786	3,508	15,503	5,149	1,217	8,756	1,210	772	2,320	514	805	223	82
Not measured	395																							
Total	95,874																							
Mean transverse pelvic diameter, cm.		27.95		27.44	27.92	28.66	27.86	28.39	29.07	28.64	29.23	29.92	29.24	29.78	30.47	30.14	30.59	31.27	30.98	31.51	31.67	31.95	33.41	34.68
Blouse group designation		1		2 s.	2 m	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Transverse pelvic diameter: Mean, 29.45 centimeters.

TABLE CV.—*Association between blouse groups and neck circumference, white troops, demobilization.*

Neck circumference, in centimeters.	Total.	Chest circumference (rest), in centimeters. 68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
28 and under	151	1	4			2		40	13		51	18			17			2			3			
29	55						2	2			1	1	4	12	1	1	22	2	1	4	2			
30	219	2	5	1	20	6	9	16	15	15	35	9	3	33	13	1	17	6	1	6	2	3	1	
31	314	7	31	16	40	17	9	52	19	16	41	6	6	22	5	1	13	3	2	6	1	1		
32	1,133	13	93	59	230	51	73	278	67	47	134	12	7	36	6	3	13	3	2	2	2	2		
33	4,286	21	133	145	586	129	225	1,207	364	298	718	146	58	152	37	6	38	6	3	9	3	2		
34	11,353	29	124	230	894	230	512	2,899	996	842	2,581	474	221	867	196	27	168	10	7	29	4	10	2	1
35	20,094	28	116	177	827	240	596	3,451	1,447	1,628	5,179	1,203	691	2,732	721	109	681	93	47	88	21	17	2	
36	22,628	26	48	89	436	145	371	2,390	1,116	1,625	5,657	1,362	981	4,340	1,418	252	1,719	205	112	251	45	36	4	
37	18,047	21	26	26	170	103	189	1,085	553	944	3,524	1,000	870	3,980	1,450	373	2,529	316	156	506	107	99	14	6
38	10,051	11	15	8	64	40	57	370	184	346	1,433	396	444	2,200	847	260	1,970	309	169	616	121	153	34	4
39	4,426	4	3	1	31	12	8	118	73	124	401	125	150	803	310	113	1,051	158	149	441	104	191	44	12
40	1,716		1	2	4	5	2	21	10	30	100	36	48	230	106	43	381	75	84	254	64	160	46	14
41	492	1						4		7	10	8	9	39	13	18	112	20	28	72	20	75	40	16
42	147				1						3	1	1	11	2	3	14	2	7	21	9	37	24	11
43	52	2			2			2			2		1	4			3	2	1	6	4	8	5	10
44	23				4			1		1	3			4			1		1			4	1	3
45	22				1			2	1	1	5			1		1				2		1	5	2
46	17							1		2	4	1		1	2			2	1	1		1	1	
47	16									1	4			4	1		1	1	1	1	1			1
48	5					1								2			2							
49	6							1							1		2					1		1
50	18				1			6			4			7										
Number measured	95,271	166	599	754	3,311	981	2,053	11,946	4,858	5,927	19,890	4,798	3,494	15,480	5,146	1,211	8,737	1,215	772	2,315	513	801	223	81
Not measured	603																							
Total	95,874																							
Mean neck circumference ......cm.		34.38		34.22	34.45	34.80	34.85	34.98	35.20	35.60	35.72	35.89	36.30	36.44	36.61	37.08	37.19	37.35	37.81	37.89	37.97	38.82	39.71	40.77
Blouse group designation		1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Neck circumference: Mean, 35.98 centimeters.

TABLE CVI.—*Association between blouse groups and total arm length, white troops, demobilization.*

Arm length, in centimeters.	Total.	Chest circumference (rest), in centimeters.																					
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109	110 and over.
60–65	8					2			3						3									
66–67	310		9	26	31	5	36	54	7	67	37	4	12	13		2	7							
68–69	1,210	8	25	64	107	10	125	283	40	180	169	14	66	63	9	11	24	2	3	2	1	4		
70–71	3,700	12	47	113	287	45	271	774	146	501	611	71	206	349	43	48	122	2	21	21	2	7		1
72–73	7,620	17	86	130	482	91	374	1,516	344	848	1,592	177	409	832	125	132	318	20	51	42	4	25	4	1
74–75	12,707	22	116	152	660	123	379	2,218	635	1,115	2,970	362	578	1,860	277	164	737	33	93	135	15	47	14	2
76–77	15,710	32	105	108	572	162	330	2,324	822	1,027	3,670	681	656	2,646	531	239	1,199	62	129	272	28	74	29	12
78–79	16,910	31	92	69	500	187	229	1,931	877	949	3,823	908	646	2,997	889	235	1,634	151	156	373	70	127	26	10
80–81	14,112	17	65	50	339	152	164	1,328	778	602	2,920	836	423	2,619	979	160	1,632	230	116	414	79	153	41	15
82–83	9,985	14	37	17	149	100	71	751	555	330	1,973	720	250	1,824	851	100	1,257	216	92	401	100	127	38	12
84–85	6,184	8	18	6	84	54	28	388	313	155	1,121	477	124	1,116	624	60	838	180	56	307	93	93	26	15
86–87	3,521	2	8	2	42	34	14	179	189	71	581	279	75	637	395	34	513	131	30	173	42	64	19	7
88–89	1,936	7	9	3	13	16	8	88	74	32	257	176	33	325	252	15	298	116	11	108	40	42	13	
90–91	569				7	6	1	12	33	11	55	47	6	95	95	5	83	34	6	30	19	16	6	2
92–93	242			1	2		3	4	15	4	23	20	2	36	35	3	35	17	2	14	8	14	3	1
94–95	103				4			3	4	1	12	6	3	13	16	1	14	9	1	6	5	3	2	
96 and over	113				5	1		5	4	3	17	5	5	15	10	2	16	6	4	5	4	3	1	2
Number measured	94,940	170	617	741	3,284	988	2,033	11,858	4,839	5,896	19,831	4,783	3,494	15,440	5,134	1,211	8,727	1,209	771	2,303	510	799	222	80
Not measured	934																							
Total	95,874																							
Mean arm length ......cm.		76.78		74.19	76.09	78.14	74.94	76.67	78.65	76.19	78.17	80.13	77.13	79.04	81.12	77.85	76.91	82.72	78.94	81.09	82.77	81.27	81.64	81.65
Blouse group designation		1		2 s.	2 m.	2 l.	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8	9	10

Arm length: Mean, 78.42 centimeters; standard deviation, 4.58±0.0013 centimeter.

TABLE CVII.—*Correlation between chest circumference (rest) and sitting height, colored troops, demobilization.*

[Basis of construction of blouse groups shown by heavy lines; circle symbols are the "blouse" group designations. For relative frequency of "groups" see Table 121.]

Chest circumference, in centimeters.	Total.	Sitting height, in centimeters. 76–77	78–79	80–81	82–83	84–85	86–87	88–89	90–91	92–93	94–95	96–97	98–99
68–69	2		(1)		2								
70–71	7					2	3	1	1				
72–73	11		1			3	3		2	2			
74–75	16		(2)	3	2	4	2	3	2				
76–77	41			6	7	12	10	5	1				
78–79	110	(3S) 1	1	6	14	(3M) 31	31	18	(3L) 7	1			
80–81	286		4	23	42	73	70	37	22	8	6		1
82–83	504	(4S) 1	7	28	69	(4M) 111	131	84	(4L) 44	20	6	2	1
84–85	927	2	8	35	118	193	229	187	96	37	17	4	1
86–87	1,113	(5S) 1	8	44	97	(5M) 225	282	226	148	(5L) 56	18	5	3
88–89	1,098	3	7	30	69	190	266	249	172	85	17	8	2
90–91	836	(6S)	4	10	52	(6M) 118	189	208	140	(6L) 81	20	11	3
92–93	643	1	1	5	26	76	153	168	123	55	23	9	3
94–95	388	(7S)	1	7	11	32	(7M) 74	86	82	(7L) 58	25	11	1
96–97	205				5	24	30	46	52	28	15	2	3
98–99	93	(8S)		1	2	6	(8M) 17	25	14	13	(8L) 9	4	2
100–01	44				1	4	7	6	11	8	5	2	
102–03	16				(9)	2		2	3	5	2	2	
104–05	8						2	2	1	2	1		
106–07	3						1	1	1				
108–09	4				1				2	1			
Number measured	6,355	9	42	198	518	1,106	1,500	1,354	924	460	164	60	20
Not measured	90												
Total	6,445												

Chest circumference (rest): Mean, 87.99 centimeters; standard deviation, 4.76±0.0285 centimeter. Sitting height: Mean, 87.35 centimeters; standard deviation, 3.43±0.0205 centimeter. Correlation: 0.3012±0.0077.

TABLE CVIII.—*Association between blouse groups and weight, colored troops, demobilization.*

Weight, in pounds.	Total.	Chest circumference (rest), in centimeters.																					
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
100–109	10	1	3	2	1												2				1		
110–119	79	1	6	8	16	1	16	23	1	1	3	2					1						
120–129	289	3	8	13	43	9	45	88	11	15	39	1		10	1		1	1	1				
130–139	602	2	2	7	34	6	38	187	28	45	194	11	13	29	2	2				1		1	
140–149	757	4		4	15	4	8	116	47	32	332	22	25	114	14	5	10	4			1		
150–159	735	1	1	1	6	7	5	41	29	13	257	51	33	197	37	15	32	3	2	4			
160–169	434	1			3	1		3	12	6	107	14	14	159	31	12	46	15	2	8			
170–179	228		1			2	1	3	3	2	17	9	2	64	25	13	42	26	6	10	2		
180–189	110								1		5	5	2	15	14	2	28	19		13	3	2	1
190–199	52		1		1				1			1		6	1	3	6	11		14	2	5	
200 and over	23														1	1	2	2		7	3	4	3
Number measured	3,319	13	22	35	119	30	113	461	133	114	954	116	89	594	126	53	170	81	11	57	12	12	4
Not measured	3,036																						
Total	6,355																						
Mean weight..lbs		135.27	126.77	126.21	131.47	140.50	129.63	136.34	145.85	140.38	147.24	154.16	151.47	157.09	163.31	164.31	167.50	175.61	164.50	181.87	179.50	193.25	
Blouse group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Weight: Mean, 149.50 pounds.

TABLE CIX.—*Association between blouse groups and shoulder width, colored troops, demobilization.*

Shoulder width, in centimeters.	Total.	Chest circumference (rest), in centimeters.																					
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
34	3	......	......	......	......	......	......	1	......	......	......	......	......	1	......	......	1	......	......	......	......	......	......
35	7	......	......	1	1	......	......	1	......	1	1	......	......	1	......	1	......	......	......	......	......	......	......
36	11	......	2	1	2	......	1	2	......	1	......	......	......	1	......	1	......	......	......	......	......	......	......
37	23	1	4	1	2	1	4	5	......	......	2	1	......	2	......	......	......	......	......	......	......	......	......
38	74	2	3	11	21	3	6	14	1	4	9	......	......	......	......	......	......	......	......	......	......	......	......
39	201	......	9	10	33	5	28	49	9	11	37	1	2	4	1	......	......	2	......	......	......	......	......
40	455	4	14	21	41	7	44	114	23	30	100	7	6	28	4	3	6	1	1	1	......	......	......
41	813	1	10	17	58	8	66	207	47	45	245	19	8	52	16	1	8	3	......	1	1	......	......
42	1,121	3	5	15	50	8	57	235	46	61	375	32	27	150	15	16	18	3	2	3	......	......	......
43	1,211	1	3	10	25	8	36	160	47	44	397	51	42	263	45	15	42	12	3	7	......	......	......
44	1,046	2	2	......	19	2	14	87	28	29	350	40	39	250	46	21	74	24	7	10	1	......	1
45	632	4	3	......	2	2	5	39	14	21	154	17	27	178	33	15	68	24	2	21	3	......	......
46	383	......	1	1	2	1	2	12	8	7	49	13	18	100	25	15	60	36	2	18	7	3	3
47	194	......	......	......	......	......	1	1	......	2	15	6	3	40	14	14	41	21	2	18	5	10	1
48	70	......	......	......	1	......	......	2	......	......	6	3	......	12	3	5	10	7	1	9	4	5	2
49	32	......	......	......	......	......	......	1	1	......	2	1	......	5	2	......	5	4	......	6	1	3	1
50 and over	13	......	......	......	......	......	......	......	1	1	......	......	......	2	......	......	1	4	......	......	......	4	......
Number measured	6,289	18	56	88	257	45	264	930	225	257	1,742	191	172	1,089	204	107	334	141	20	94	22	25	8
Not measured	66	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	6,355	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean shoulder width	......	41.72	40.41	40.44	40.95	41.29	41.26	41.82	42.30	42.17	42.73	43.30	43.52	43.72	44.01	44.26	44.74	45.35	44.25	45.67	46.27	47.55	
Blouse group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Shoulder width: Mean, 42.89 centimeters; standard deviation, 2.15 ± 0.0130 centimeter.

TABLE CX.—*Association between blouse groups and transverse diameter of chest, colored troops, demobilization.*

Transverse chest, in centimeters.	Total.	Chest circumference (rest), in centimeters.																					
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
19	1						1																
20	15		1		1			2	1	1	4			4			1						
21	24		2	1	1			3			10		1	3	3								
22	16					1		1			3	1	1	4	1		1	3					
23	21		2		2		1		1	1	7	3		1		2	1						
24	64	2	6	5	9	2	4	10	1	2	9	1		9	1			2		1			
25	134		5	12	19	1	13	41	8	3	20	2		8	1							1	
26	359	4	12	19	48	8	32	88	17	19	75	5		23	3	2	2	1		1			
27	688	3	11	18	64	8	64	178	34	43	170	20	6	50	9	2	8						
28	1,211	3	7	23	57	10	70	248	58	66	390	37	36	133	20	10	35	5	2		1		
29	1,295	5	7	10	29	12	43	193	45	54	416	48	40	260	35	16	50	16	3	10	2	1	
30	1,109	1	3	2	17	4	30	99	31	42	318	41	34	256	51	25	72	33	1	15	2	2	
31	706	2		1	8		4	41	16	16	172	14	29	202	41	25	73	37	4	14	4	2	1
32	404		1		3		2	15	9	6	78	13	17	95	25	15	60	24	3	27	4	4	3
33	164							8	5	5	35	4	6	28	10	7	18	9	4	14	3	7	1
34	77								1		11	3	1	15	3	3	13	9	2	6	5	5	
35	19							1			1		1	4		1		1		5	1	2	2
36	10										2	1		1		2	2	2					
37	6						1	1			1						1	1					1
38	6							2	1		2			1									
39	9						2	2			3						1		1				
40 and over	1							1															
Number measured	6,339	20	57	91	258	46	267	934	228	258	1,757	193	172	1,097	203	110	338	143	20	93	22	24	8
Not measured	16																						
Total	6,355																						
Mean chest circumference ......cm.		27.70	26.44	26.88	27.31	27.54	27.84	28.13	28.54	28.48	28.97	29.08	29.67	29.64	29.87	30.37	30.44	30.74	31.60	31.49	31.91	32.56	
Blouse group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Chest circumference: Mean, 29.01 centimeters.

TABLE CXI.—*Association between blouse groups and antero-posterior diameter of chest, colored troops, demobilization.*

Chest antero-posterior, in centimeters.	Total.	Chest circumference (rest), in centimeters.																				
		73 and under.	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
15	3				1		1	1															
16	5			1				1	1		1			1									
17	19		2	1	6	1		5	2		2												
18	143	3	14	14	23	4	10	38	5	4	16	3	2	5	2								
19	622	3	15	26	72	6	59	173	36	25	148	13	6	34	2		2	2					
20	1,370	3	12	24	96	16	91	305	57	77	439	29	24	141	16	9	17	8	1	4	1		
21	1,681	3	9	16	31	10	61	243	73	71	566	64	41	312	60	24	58	23	1	10	4		1
22	1,370	7	4	6	18	5	31	115	31	54	384	57	55	332	72	29	112	34	5	14	3	2	
23	684			2	6	1	9	35	18	14	126	23	34	176	37	31	86	47	4	26	5	4	
24	265	1			2	1	1	10	3	11	39	1	7	60	12	11	47	20	5	23	4	6	1
25	87							1	1	2	8	3	1	20	3	5	11	5	2	12	4	7	2
26	26				1		1	1			6		1	4	1		2	1	1	2	1	2	2
27	20						1	1			3			4			1	2	1	3		3	1
28	8				1	1		1			2	1		1									1
29	9			1	1		2			1	4												
30	7								1		3		1					1				1	
31	5				1			1			1			1			1						
32	1						1																
33																							
34 and over	3							1			1			1									
Number measured	6,328	20	56	91	259	45	268	932	228	259	1,749	194	172	1,092	205	109	337	143	20	94	22	25	8
Not measured	26																						
Total	6,354																						
Mean chest antero-posterior diameter		20.60	19.43	19.80	19.95	20.40	20.42	20.43	20.70	20.97	21.08	21.31	21.70	21.72	21.84	22.24	22.41	22.55	23.30	23.20	23.05	24.85	
Blouse group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Chest antero-posterior: Mean, 21.20 centimeters.

TABLE CXII.—*Association between blouse groups and transverse pelvic diameter, colored troops, demobilization.*

Chest circumference (rest), in centimeters.

Transverse pelvis, in centimeters.	Total.	68-73	74-77	78-81 s.	78-81 m.	78-81 l.	82-85 s.	82-85 m.	82-85 l.	86-89 s.
20	8				1			1		1
21	22			1	1	1	2	3	2	3
22	14		2		1		2	3		3
23	35	1	2	1	3	1	4	9	1	
24	125	3	10	4	8	3	21	21	8	5
25	331	1	5	21	41	4	39	66	9	11
26	744	3	7	18	71	5	49	178	21	41
27	1,003	5	12	15	35	9	55	209	44	49
28	1,128	2	7	13	41	5	30	163	52	52
29	999	2	5	8	24	5	31	120	34	31
30	708	1	3	6	17	4	14	72	15	25
31	530	1	1	3	5	4	9	43	18	22
32	342		2		4	2	9	22	11	10
33	158		1	1	3	1		11	4	1
34	67	1			1	1		4	1	1
35	32				1				1	1
36	19							2		
37	8							1	1	
38	22					1	1	4	1	1
39	17						1		2	1
40	7						1	1		
41	4									1
42 and over	22				1			1	2	
Number measured	6,345	20	57	91	258	46	268	934	227	259
Not measured	10									
Total	6,355									
Mean transverse pelvic diameter		27.10	26.67	26.81	27.08	27.98	27.09	27.69	28.44	28.03
Blouse group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.

Transverse pelvis, in centimeters.	86-89 m.	86-89 l.	90-93 s.	90-93 m.	90-93 l.	94-97 s.	94-97 m.	94-97 l.	98-101 s.	98-101 m.	98-101 l.	102-105	106-109
20	2			2		1							
21	4	1		3						1			
22	3												
23	10		2	1									
24	23	2	3	8		2	4						
25	83	6	10	26	3	1	2	2		1			
26	218	15	17	71	8	7	9	3	1	2			
27	302	18	31	146	21	6	28	11		5	2		
28	368	42	27	202	29	17	55	12	5	5	1		
29	278	33	26	207	42	20	77	35	4	14	2	1	
30	190	26	24	144	45	16	53	27	3	15	4	3	1
31	132	20	10	132	19	16	48	19	3	17	2	5	1
32	72	14	13	80	22	12	28	18	1	14	4	4	
33	30	10	2	38	6	8	15	6	1	9	4	5	2
34	7	3	4	16	3	1	7	3		7	2	3	2
35	3	1	1	7	3	1	3	4		2	1	1	2
36	7			3	1	1	2	2				1	
37	2			1		1	1					1	
38	7	1	1	1	1		2		1				
39	5	1	1	3	1			1	1				
40	2			1			2						
41	1	1					1						
42 and over	7		1	5			2			2		1	
Number measured	1,756	194	173	1,097	204	110	339	143	20	94	22	25	8
Not measured													
Total													
Mean transverse pelvic diameter	28.40	29.18	28.66	29.15	29.61	29.63	29.83	30.08	30.35	30.78	31.14	32.85	
Blouse group designation	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Transverse pelvic diameter: Mean, 28.54 centimeters.

TABLE CXIII.—*Association between blouse groups and neck circumference, colored troops, demobilization.*

Neck circumference, in centimeters.	Total.	Chest circumference (rest), in centimeters.																				
		73 and under.	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
29	1										1												
30	16			1	1		1	1		1	3		1	6			1						
31	14		1		3			6			2	1		1									
32	61		6	5	11	1	5	16	3		12			2									
33	177	2	15	15	22	5	14	46	9	5	29	4	3	5	2	1							
34	519	2	8	25	64	14	54	134	30	26	103	8	5	36	4	1	3	1		1			
35	1,074	6	12	17	67	3	71	273	56	53	316	34	19	114	13	4	12	1	2	1			
36	1,474	3	9	19	59	13	75	235	70	77	500	47	36	223	36	18	36	11		6	1		
37	1,415	1	2	7	17	8	32	131	31	61	468	60	49	307	67	27	85	40	4	13	5		
38	920	1	3		10	1	12	59	18	30	221	29	35	248	55	33	89	41	6	18	5	6	
39	398	1	1		3	1	2	14	7	4	69	7	18	96	17	16	73	31	3	20	3	10	2
40	161						1	5		2	15	2	5	35	6	10	28	14	2	19	5	8	4
41	36							1			2		1	8	1		8	3		8	3	1	
42	11													1			3			5			2
43	2													1						1			
44	1																			1			
Number measured	6,280	16	57	89	257	46	267	921	224	259	1,741	192	172	1,083	201	110	338	142	17	93	22	25	8
Not measured	75																						
Total	6,355																						
Mean neck circumference ......cm		35.37	34.40	34.53	34.91	35.20	35.32	35.50	35.70	36.06	36.28	36.42	36.90	36.95	37.14	37.56	37.86	37.99	37.82	38.87	38.68	39.42	
Blouse group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Neck circumference: Mean ,36.37 centimeters.

TABLE CXIV.—*Association between blouse groups and total arm length, colored troops, demobilization.*

Arm length, in centimeters.	Total.	Chest circumference (rest), in centimeters.																				
		68–73	74–77	78–81 s.	78–81 m.	78–81 l.	82–85 s.	82–85 m.	82–85 l.	86–89 s.	86–89 m.	86–89 l.	90–93 s.	90–93 m.	90–93 l.	94–97 s.	94–97 m.	94–97 l.	98–101 s.	98–101 m.	98–101 l.	102–105	106–109
60–65	5	......	......	1	......	......	1	......	......	......	1	......	......	1	1	......	......	......	......	......	......	......	......
66–67	2	......	......	......	......	......	1	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
68–69	19	......	2	3	1	......	1	6	......	......	3	1	......	1	......	......	1	......	......	......	......	......	......
70–71	103	1	4	2	10	1	12	17	6	11	22	5	4	2	2	2	1	......	1	......	......	......	......
72–73	249	1	7	16	23	3	27	51	6	23	68	......	1	17	2	......	2	1	......	......	......	......	1
74–75	464	2	10	15	36	6	39	93	14	28	127	8	14	45	4	7	9	1	3	1	......	1	1
76–77	723	2	7	23	47	5	55	157	31	34	203	14	26	82	7	9	13	5	......	3	......	......	......
78–79	1,042	5	10	12	59	10	50	187	36	51	325	23	34	153	21	13	30	14	2	4	......	3	......
80–81	1,057	5	7	6	40	8	36	175	45	41	294	28	24	202	31	20	54	15	5	16	4	1	......
82–83	881	1	3	4	11	4	18	108	30	28	265	39	32	176	32	16	70	18	2	14	1	6	3
84–85	684	......	......	4	15	3	10	53	29	18	180	35	11	164	47	13	43	33	1	15	5	4	1
86–87	460	......	1	......	6	2	7	44	16	5	114	13	10	120	24	10	42	21	......	20	2	3	......
88–89	244	1	......	......	2	1	......	16	4	7	65	14	3	54	11	6	28	12	2	12	3	3	......
90–91	115	1	......	......	2	......	......	6	1	2	22	4	4	27	9	4	17	8	2	4	1	1	......
92–93	52	......	......	......	......	1	2	......	3	......	11	4	1	9	4	2	5	4	......	3	2	1	......
94–95	21	......	......	......	......	......	......	......	......	......	2	1	1	8	5	......	2	......	......	1	......	1	......
96 and over	14	......	......	......	......	......	......	1	......	......	3	1	......	3	2	......	1	2	......	......	1	......	......
Number measured	6,135	19	51	86	252	44	259	915	221	248	1,705	190	165	1,064	202	102	318	134	18	93	19	24	6
Not measured	220	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	6,355	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean arm length ...cm	......	79.03	76.26	76.06	77.87	79.18	77.45	79.05	80.33	78.62	80.41	82.15	80.22	82.01	83.36	81.79	83.20	84.14	81.17	84.46	86.18	83.50	
Blouse group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	

Arm length: Mean, 80.56 centimeters; standard deviation, 4.76±0.0213 centimeter.

TABLE CXV.—*Correlation between waist circumference and leg length, white troops, demobilization.*

[Basis of construction of breeches groups shown by heavy lines: circle symbols are the "breeches" group designations. For relative frequency of "groups" see Table 211.]

Leg length, in centimeters.	Total.	Waist circumference (rest), in centimeters. 63 and under.	64–67	68–71	72–75	76–79	80–83	84–87	88–91	92–95	96–99	100–103	104–107	Mean waist circumference (rest).
			(2)	(3B)	(4B)	(5B)	(6B)	(7B)	(8B)	(9)				*Cm.*
50–51	24		2	1	4	7	3	4	2	1				79.02
52–53	39		1	4	10	14	3	3	4					77.50
											(10)			
54–55	41		1	5	12	13	5	3	1		1			76.90
56–57	103		2	12	39	22	19	7		2				76.42
		(1)										(11)	(12)	
58–59	265	1	17	38	70	76	37	15	5	4	1		1	76.14
60–61	923	10	35	166	297	211	122	44	18	16	1	1	2	75.66
62–63	2,357	27	82	374	733	611	314	128	56	18	12		2	75.90
64–65	4,948	36	169	791	1,519	1,101	811	298	130	62	17	10	4	76.26
				(3M)	(4M)									
66–67	9,790	44	231	1,300	2,615	3,002	1,524	645	254	97	52	14	12	76.82
						(5M)	(6M)	(7M)	(8M)					
68–69	14,201	57	242	1,692	3,859	4,191	2,448	1,035	411	146	72	29	19	77.18
70–71	17,308	82	260	1,764	4,305	5,007	3,374	1,559	623	186	90	32	26	77.74
72–73	16,103	67	203	1,397	3,766	4,790	3,336	1,583	603	217	90	36	15	78.14
74–75	12,410	49	119	921	2,703	3,661	2,719	1,353	567	171	102	24	21	78.62
				(3L)	(4L)	(5L)								
76–77	8,513	38	72	566	1,694	2,556	1,925	1,003	449	121	51	23	15	78.94
							(6L)	(7L)	(8L)					
78–79	4,861	22	32	293	936	1,419	1,082	664	280	81	33	8	11	79.26
80–81	2,390	11	13	118	402	679	571	357	162	44	21	9	3	79.86
82–83	1,063	4	10	53	175	261	272	159	85	35	3	6		80.18
84–85	405	1	3	13	58	115	107	63	30	14	1			80.34
86–87	202	1	2	2	23	63	58	26	13	5	5	2	2	81.14
88–89	98		1	7	14	21	24	21	8	1	1			80.26
90–91	36	1			9	10	6	7	2	1				79.38
92–93	22		2	2	4	3	7	3	1					77.86
94–95	22	1		2	4	8	3	1	1		2			78.58
96–97	16	2		2	1	5	4	2						76.26
98–99	14		1		1	2	6	3		1				80.94
100–101	3				2			1						77.50
Number measured	96,157	454	1,500	9,523	23,255	27,848	18,780	8,987	3,705	1,223	555	194	133	77.86
Not measured	1,006													
Total	97,163													
Mean leg length, cm.		70.90	69.34	70.06	70.76	71.52	72.08	72.62	72.78	72.34	72.26	72.46	71.98	

Leg length: Mean, 71.44 centimeters; standard deviation, 4.72 centimeters. Waist circumference: Mean, 77.87 centimeters; standard deviation, 6.08 centimeters. Correlation: 0.1591±0.0021.

TABLE CXVI.—*Association between breeches groups and transverse pelvic diameter, white troops, demobilization.*

Transverse pelvis, in centimeters.	Total.	Waist circumference, in centimeters.																						
		50–63 l.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
19 and under	25	......	......	......	19	1	......	2	......	......	1	......	......	1	......	......	......	......	......	......	......	......	......	......	1
20	80	2	3	......	9	......	3	17	2	5	13	......	1	15	1	......	7	......	......	2	......	......	......	......	......
21	216	10	17	4	20	3	5	46	11	9	29	5	5	28	3	3	11	2	1	3	......	......	1	......	......
22	333	7	42	24	61	9	12	52	17	12	29	14	3	13	3	2	18	2	......	7	1	3	1	1	......
23	730	7	87	46	159	10	41	155	32	22	73	16	9	31	5	4	17	1	2	7	1	1	2	1	1
24	1,473	10	96	98	285	35	104	377	53	86	170	46	20	39	10	5	18	2	1	7	3	4	......	2	2
25	3,250	30	164	184	534	37	241	898	106	209	473	93	56	133	21	7	39	4	1	7	3	5	4	......	1
26	6,123	45	193	242	840	68	465	1,656	174	511	995	186	145	390	42	31	83	10	7	26	2	7	4	......	1
27	9,608	47	235	286	1,101	99	559	2,535	247	833	1,792	300	305	828	81	61	190	20	11	44	10	13	10	......	1
28	14,460	73	222	233	1,196	138	508	3,305	437	1,145	3,176	575	566	1,766	140	180	523	25	43	139	13	34	21	......	2
29	15,828	55	158	112	1,017	149	337	2,907	475	963	3,509	707	645	2,651	276	249	1,040	79	95	276	25	64	32	4	3
30	13,955	55	104	65	726	142	186	1,988	448	579	2,795	765	469	2,722	329	252	1,446	114	94	435	56	124	50	7	4
31	10,060	36	75	32	419	109	94	1,232	372	266	1,712	645	278	1,939	317	146	1,253	124	92	502	82	239	71	19	6
32	7,274	23	43	23	328	107	48	845	342	163	1,127	539	140	1,229	257	96	894	119	54	414	112	245	89	25	12
33	5,096	24	21	9	138	83	19	496	281	89	742	541	77	850	246	41	601	98	30	309	79	180	88	34	20
34	2,971	11	8	3	68	24	6	229	174	42	348	335	32	489	194	10	350	116	14	188	75	126	69	44	16
35	1,683	10	3	5	29	19	5	91	63	20	174	194	14	248	114	15	212	93	7	143	57	84	38	23	22
36	823	1	5	5	21	3	8	59	28	15	81	62	11	130	47	9	90	41	6	68	31	45	29	16	12
37	453	1	3	5	25	3	6	56	11	17	63	28	9	50	13	3	35	17	1	23	18	25	24	8	9
38	363	1	4	3	22	8	7	65	9	9	75	24	9	59	6	6	22	5	......	8	3	3	5	2	8
39	362	......	5	1	20	2	6	72	20	9	69	19	9	51	6	9	26	1	2	11	4	5	6	5	4
40 and over	492	4	7	1	20	5	7	72	14	19	85	38	10	72	24	9	40	12	5	14	4	11	9	2	8
Number measured	95,658	452	1,495	1,381	7,057	1,054	2,667	17,155	3,316	5,023	17,531	5,132	2,813	13,734	2,135	1,138	6,915	885	466	2,633	579	1,218	553	193	133
Not measured	499	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	96,157	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean transverse pelvic diameter..cm..	......	28.59	27.23	26.95	28.05	29.39	27.52	28.59	29.83	28.40	29.30	30.48	29.13	30.08	31.13	29.84	30.75	32.05	30.46	31.36	32.42	32.08	32.41	33.44	34.06
Breeches group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Transverse pelvic diameter: Mean, 29.43 centimeters.

TABLE CXVII.—*Association between breeches groups and knee height, white troops, demobilization.*

Knee height, in centimeters.	Total.	Waist circumference, in centimeters.																							
		50–63	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
36	349	1		15	27	1	32	68	10	34	74	5	20	28	4	6	18	1	2	2	1				
37	210	1	6	3	19	3	13	35	4	15	38	2	18	21	3	5	12		1	4		6		1	
38	333	1	8	13	41	1	17	55	9	39	46	5	28	38	3	8	11		3	4		2			1
39	506	2	15	20	36	1	48	81	5	65	77	5	35	62	1	14	22		3	7		4	1	1	1
40	1,088	5	28	51	84	3	104	170	15	147	140	14	72	114		34	48	2	14	21	1	16	1	2	2
41	1,843	18	49	84	133	10	169	327	35	223	264	42	99	151	3	59	90	6	22	27	1	18	9	1	3
42	3,052	14	85	115	250	15	237	588	49	337	471	57	201	275	18	70	125	4	32	47	3	28	21	4	6
43	4,642	24	84	118	417	26	253	877	81	484	769	104	237	542	30	111	242	9	63	83	4	57	23	3	1
44	6,243	31	122	122	590	44	235	1,293	128	509	1,105	162	331	736	48	119	376	11	44	123	11	63	22	9	9
45	8,242	42	138	95	682	77	202	1,714	160	511	1,667	250	314	1,163	75	134	530	34	43	234	19	92	38	12	16
46	8,904	34	115	73	648	82	156	1,784	208	389	1,956	332	257	1,437	93	95	704	41	34	255	30	97	52	15	17
47	8,784	35	97	74	576	112	136	1,509	277	284	1,957	458	168	1,460	157	54	813	37	37	293	38	123	58	18	13
48	8,183	29	92	73	440	111	139	1,286	346	260	1,632	477	138	1,505	186	69	755	64	20	295	37	134	64	22	9
49	6,468	22	83	58	322	96	123	894	332	218	1,176	510	121	1,132	197	51	565	78	17	247	46	99	50	23	8
50	5,369	34	59	38	271	63	51	699	288	167	854	495	107	887	236	25	561	108	15	205	62	79	51	14	
51	3,596	15	27	19	186	54	30	492	235	90	549	406	61	545	192	27	308	86	5	129	56	50	20	10	4
52	2,867	11	32	6	137	47	9	406	157	54	488	319	40	424	185	14	229	78	2	93	55	48	22	5	6
53	2,131	8	12	2	92	28	1	287	114	17	380	252	15	339	139	5	196	66	5	68	42	38	15	6	4
54	1,467	3	7		39	32	2	147	105	7	247	183	5	265	100	2	126	76	2	49	29	26	9	4	2
55	962	2	6		31	21	2	76	78	3	137	130	5	156	90	1	86	39	2	30	25	22	11	7	2
56	577	2	4		10	14	1	34	44	2	61	96		84	59	1	60	31		28	22	13	4	3	4
57	336	1	1		6	3	1	18	20		29	64	2	50	41		32	29		10	18	6	2	3	
58	177	1	1	1	2	6		6	16		12	32		23	20	1	14	16		6	14	4	1		1
59 and over	231	1	4	1	4	6	9	11	18	14	22	32	8	17	19	3	19	11	3	4	16	6	3		
Number measured	76,560	337	1,075	981	5,043	856	1,970	12,857	2,734	3,869	14,151	4,432	2,282	11,454	1,899	908	5,942	827	369	2,264	530	1,031	477	163	109
Not measured	19,597																								
Total	96,157																								
Mean knee height, centimeters		46.58	45.81	44.39	46.09	48.30	44.28	46.40	48.67	44.90	46.91	49.20	45.06	47.44	50.11	44.94	47.67	50.79	44.96	47.76	50.85	47.70	47.82	48.33	47.12
Breeches group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Knee height: Mean, 47 centimeters.

TABLE CXVIII.—*Association between breeches groups and thigh circumference, white troops, demobilization.*

Thigh circumference, in centimeters.	Total.	Breeches groups (waist circumference, in centimeters).																							
		50–63	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103.	104 and over.
42	112	15	18	2	19	......	2	21	7	1	11	5	2	5	......	2	1	......	......	......	......	1	......	......	......
43	256	11	45	9	57	12	10	52	10	5	21	9	2	8	......	......	1	1	......	......	......	2	......	1	......
44	434	19	65	26	123	14	10	92	19	6	34	7	3	8	2	2	1	1	......	......	1	......	......	......	1
45	914	27	145	48	232	32	39	186	34	25	73	21	6	21	6	3	8	......	2	2	......	1	2	1	......
46	1,568	21	177	79	372	72	62	420	90	46	122	47	6	25	11	3	7	3	2	1	1	1	......	......	......
47	2,857	43	216	147	690	103	130	780	143	100	291	84	16	64	7	3	20	2	2	5	2	6	2	......	1
48	4,596	31	256	190	1,004	134	206	1,380	232	198	553	169	26	134	27	7	32	2	1	8	......	2	4	......	......
49	6,638	24	196	208	1,084	167	330	2,060	366	296	1,085	314	55	285	54	8	60	8	5	13	1	9	8	1	1
50	9,226	18	127	234	1,080	158	413	2,559	481	553	1,792	525	143	695	100	36	190	27	12	47	13	15	8	......	......
51	10,078	21	83	157	812	119	440	2,622	487	629	2,279	631	208	993	155	38	235	37	14	60	19	23	10	1	5
52	11,147	16	44	109	640	76	361	2,360	492	794	2,748	756	286	1,494	256	64	388	60	18	101	20	43	14	2	5
53	10,922	15	36	71	360	67	256	1,830	369	718	2,710	799	386	1,945	292	108	642	91	24	133	31	20	13	3	3
54	9,441	9	18	29	208	33	161	1,191	225	576	2,104	619	384	2,124	316	121	816	119	23	232	59	48	20	4	2
55	7,803	6	12	21	101	19	116	673	124	454	1,558	447	415	1,848	305	166	965	114	44	262	66	61	20	2	4
56	5,730	8	6	17	70	9	57	365	98	266	922	269	325	1,437	213	148	882	115	56	294	70	68	28	5	2
57	4,280	8	3	2	54	8	27	190	45	148	517	170	212	1,010	173	135	844	109	57	340	65	105	46	12	......
58	2,959	3	1	3	19	5	14	108	25	84	280	91	154	662	84	108	610	66	57	293	63	158	57	9	2
59	2,175	3	2	2	19	3	8	96	23	55	183	61	91	440	54	60	477	42	42	256	45	151	41	13	5
60	1,328	......	......	1	11	3	6	31	6	18	69	22	46	212	31	49	301	35	35	209	43	126	47	19	5
61	799	1	......	2	2	......	3	14	2	12	39	18	20	124	13	26	152	18	26	121	33	93	43	26	11
62	554	......	......	3	2	......	4	9	4	9	20	6	5	54	12	24	95	11	21	97	18	83	48	19	10
63	352	......	......	......	2	......	1	8	2	3	21	5	10	29	4	5	51	4	6	57	8	63	48	15	10
64	243	1	1	......	3	2	......	8	......	2	9	2	2	20	4	7	36	5	6	34	7	46	26	16	6
65	181	......	1	......	2	1	2	2	2	......	10	5	2	10	1	3	25	3	8	23	3	29	24	14	11
66 and over	595	9	6	7	18	8	4	49	10	7	55	8	13	66	11	11	64	7	4	48	9	59	44	30	48
Number measured	95,188	309	1,461	1,367	6,984	1,015	2,662	17,106	3,296	5,005	17,506	5,090	2,821	13,713	2,131	1,137	6,906	880	465	2,636	577	1,213	553	193	132
Not measured	969	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	96,157	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean thigh circumference ....cm	....	49.17	47.95	49.51	49.58	49.73	50.90	50.99	51.13	52.39	52.49	52.51	54.23	54.19	54.06	55.63	55.73	55.40	56.89	57.04	56.73	58.65	59.24	61.10	61.76
Breeches group designation	....	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Thigh circumference: Mean, 52.71 centimeters.

TABLE CXIX.—*Association between breeches groups and suprapatella, white troops, demobilization.*

Suprapatella, in centimeters.	Total.	Waist circumference, in centimeters.																							
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
32	1,815	29	191	89	387	61	62	370	87	56	173	58	35	91	11	4	51	8	1	27	5	9	4	6	....
33	3,473	41	266	168	756	116	151	898	170	140	355	118	24	135	22	8	52	6	4	10	14	11	5	2	1
34	6,637	49	307	251	1,169	156	303	1,885	299	350	959	246	87	304	56	17	106	13	8	32	6	20	6	5	3
35	10,814	66	267	286	1,394	207	485	2,884	531	636	2,026	540	179	755	136	55	222	25	14	60	10	18	13	4	1
36	14,058	65	192	229	1,272	165	530	3,335	620	879	3,038	846	317	1,616	219	72	402	78	20	89	24	29	17	2	2
37	15,508	64	85	162	927	148	471	3,197	644	906	3,435	999	451	2,288	315	139	823	89	41	207	42	41	28	2	4
38	14,014	42	64	73	491	88	308	2,216	444	814	3,013	895	560	2,550	402	184	1,128	146	67	321	79	88	31	4	6
39	10,722	32	34	70	287	51	175	1,161	237	549	2,102	686	453	2,266	372	196	1,181	138	51	388	103	133	46	8	3
40	7,583	29	22	23	134	25	93	594	148	370	1,280	386	314	1,618	285	155	1,098	142	83	428	77	190	68	15	6
41	5,023	23	55	29	146	19	59	352	61	189	625	184	204	1,023	142	143	820	101	68	383	83	197	85	24	8
42	6,510	14	17	11	110	23	47	356	82	168	638	189	214	1,156	180	174	1,072	139	113	708	139	487	252	122	99
Total	96,157	454	1,500	1,391	7,073	1,059	2,684	17,248	3,323	5,057	17,644	5,147	2,838	13,802	2,140	1,147	6,955	885	470	2,653	582	1,223	555	194	133
Mean suprapatella circumference, cm	....	36.34	34.89	35.41	35.74	35.72	36.25	36.38	36.50	37.11	37.25	37.33	38.09	38.22	38.25	38.92	39.98	38.94	39.47	39.63	39.41	40.22	40.29	40.65	41.06
Breeches group designation	....	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Suprapatella: Mean, 37.34 centimeters; standard deviation, 2.45± 0.0056 centimeter.

TABLE CXX.—*Association between breeches groups and patella circumference, white troops, demobilization.*

Patella circumference, in centimeters.	Total.	Waist circumference, in centimeters.																						
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
31 and under	976	26	54	40	99	10	31	135	27	49	90	26	20	109	22	10	84	24	1	47	18	29	19	6	....
32	1,745	45	134	122	337	28	114	391	45	88	180	47	30	87	12	9	35	6	2	11	3	10	6	2	1
33	4,821	59	326	286	884	79	332	1,209	148	333	567	123	85	220	25	14	69	15	7	16	2	9	9	3	1
34	10,459	95	431	376	1,587	192	615	2,790	348	769	1,656	315	211	618	67	66	183	17	19	56	10	18	14	4	2
35	16,926	65	299	310	1,820	274	698	4,250	645	1,188	3,364	731	508	1,603	168	164	507	54	49	141	20	42	20	3	3
36	19,637	61	170	158	1,328	220	519	4,095	820	1,176	4,305	1,093	628	2,829	311	209	1,077	87	67	288	46	96	42	4	8
37	17,627	34	45	60	648	143	245	2,710	672	833	3,831	1,239	667	3,280	476	265	1,470	167	88	428	98	155	54	12	7
38	12,025	26	20	24	252	67	78	1,136	394	405	2,329	903	401	2,593	481	186	1,451	182	99	547	125	214	90	15	7
39	6,724	20	11	6	70	32	35	375	156	157	883	447	205	1,520	331	135	1,093	165	76	516	93	255	92	37	14
40	3,338	17	5	4	34	9	13	124	53	50	335	166	70	680	178	63	624	93	37	340	92	189	102	37	23
41	1,879	6	5	5	14	5	4	33	15	9	104	57	13	263	69	26	362	75	25	263	75	206	107	71	67
Total	96,157	454	1,500	1,391	7,073	1,059	2,684	17,248	3,323	5,057	17,644	5,147	2,838	13,802	2,140	1,147	6,955	885	470	2,653	582	1,223	555	194	133
Mean patella circumference....cm.	....	34.90	34.15	34.25	35.88	35.41	34.90	35.48	36.03	35.61	36.20	36.64	36.36	36.92	37.38	36.87	37.48	37.69	37.42	37.95	38.10	38.33	38.27	39.08	39.65
Breeches group designation	....	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Patella circumference: Mean, 36.21 centimeters; standard deviation, 1.98 centimeters.

TABLE CXXI.—*Association between breeches groups and calf circumference, white troops, demobilization.*

Waist circumference, in centimeters.

Calf circumference, in centimeters.	Total.	63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.
29	587	13	67	35	141	16	26	119	23	16	43	10
30	2, 472	35	239	124	551	74	126	600	81	106	256	44
31	6, 021	47	348	246	1, 204	165	294	1, 690	292	315	718	175
32	12, 115	72	361	360	1, 787	225	604	3, 320	590	682	2, 076	564
33	17, 024	60	238	289	1, 478	246	646	4, 134	743	1, 172	3, 618	950
34	18, 651	62	111	182	1, 017	166	515	3, 596	709	1, 108	4, 141	1, 183
35	16, 485	66	49	73	505	92	295	2, 228	500	860	3, 502	1, 036
36	11, 346	51	9	38	188	48	112	1, 010	236	500	2, 031	668
37	6, 303	20	17	9	79	13	30	327	84	206	868	352
38	3, 039	10	20	6	37	3	16	104	32	54	253	123
39 and over	2, 044	17	41	25	80	11	16	112	29	36	138	40
Number measured	96, 087	453	1, 500	1, 387	7, 067	1, 059	2, 680	17, 240	3, 319	5, 055	17, 644	5, 145
Not measured	70	......	......	......	......	......	......	......	......	......	......	......
Total	96, 157	......	......	......	......	......	......	......	......	......	......	......
Mean calf circumference, cm.	......	33. 57	32. 07	32. 49	32. 60	32. 80	33. 02	33. 27	33. 48	33. 78	34. 04	34. 25
Breeches group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.

Calf circumference, in centimeters.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
29	9	29	3	4	10	1	4	......	2	5	4	2	5
30	19	79	14	8	32	6	3	25	7	15	16	5	7
31	74	247	35	18	88	7	5	29	4	7	8	2	3
32	210	783	102	50	203	22	14	47	10	19	12	......	2
33	454	1, 733	270	114	546	71	35	136	23	38	23	2	5
34	583	2, 951	412	194	1, 077	117	58	292	55	76	36	7	3
35	671	3, 286	466	276	1, 505	175	92	471	112	154	53	11	7
36	453	2, 490	421	220	1, 547	190	104	576	123	223	90	11	7
37	233	1, 371	250	157	1, 057	158	73	493	105	277	88	27	9
38	103	601	98	71	586	88	50	346	79	214	91	42	12
39 and over	26	223	65	35	299	49	32	228	62	193	132	83	72
Number measured	2, 835	13, 793	2, 136	1, 147	6, 950	884	470	2, 643	582	1, 221	553	192	132
Not measured	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean calf circumference, cm.	34. 56	34. 83	34. 99	35. 16	35. 47	35. 65	35. 64	35. 97	36. 07	36. 51	36. 47	37. 43	36. 92
Breeches group designation	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	12

Calf circumference: Mean, 34.09 centimeters; standard deviation, 2.02 ± 0.0045 centimeters.

TABLE CXXII.—*Correlation between waist circumference and leg length, colored troops, demobilization.*

[Basis of construction of breeches groups shown by heavy lines; circle symbols are the "breeches" group designations. For relative frequency of "groups," see Table 121.]

Leg length, in centimeters.	Total.	Waist circumference, in centimeters.											
		63 and under.	64–67	68–71	72–75	76–79	80–83	84–87	88–91	92–95	96–99	100–103	104 and over.
54–55	2		(2) 1			(5S) 1							
56–57	1					1							
58–59	4		1	(3S)	(4S) 2		(6S) 1						
60–61	22		1	3	6	10	2						
62–63	49	(1) 3	1	10	17	8	6	(7S) 1	(8S) 3				
64–65	109	1	3	20	25	35	11	8	3		(10) 1	(11) 1	1
66–67	241		10	41	68	78	28	8	3		1	1	3
68–69	464	2	10	(3M) 71	133	131	67	35	7	(9) 3	3	1	1
70–71	890	2	7	99	(4M) 240	(5M) 277	(6M) 164	(7M) 58	(8M) 30	8	3	1	1
72–73	1,028	2	10	94	282	348	180	73	26	6	4	1	2
74–75	1,083	8	10	94	261	371	215	77	29	7	7	1	3
76–77	1,031	6	7	66	237	334	216	104	38	11	10	1	1
78–79	712	8	3	(3L) 42	(4L) 131	(5L) 233	174	84	24	7	4	1	1
80–81	430	1	5	26	72	133	(6L) 110	(7L) 44	(8L) 22	13	2	1	1
82–83	214		2	13	24	72	61	26	12	1	2	1	
84–85	87	1		4	13	29	24	6	7	1	1	1	
86–87	46			2	4	17	9	8	4	1			1
88 and over	32			1	4	12	8	4	1	2			
Number measured	6,445	34	71	586	1,519	2,090	1,276	536	209	60	38	11	15
Not measured	75												
Total	6,520												

Waist circumference: Mean, 77.83 centimeters; standard deviation, 5.76±0.034 centimeter.

TABLE CXXIII.—*Association between breeches groups and transverse diameter of pelvis, colored troops, demobilization.*

Transverse pelvis, in centimeters.	Total.	Waist circumference, in centimeters.																							
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104–109
20	5				1			2		1	1														
21	18			1	3		1	3		1	5	3	1												
22	14	2			1		1	4		1	5														
23	35		5	4	8	1	1	4	3	1	4	2					2								
24	126	3	8	8	21	4	13	28	2	12	16	5		4			1		1						
25	337	2	10	20	67	7	32	89	8	24	51	8	2	10	2	1	3		1						
26	752	3	19	12	103	22	54	199	36	47	158	30	14	34	4	1	12	1		2			1		
27	1,017	3	11	14	76	14	57	230	55	62	248	64	22	110	15	6	21	1		5	1	2			
28	1,146	5	7	6	55	21	41	171	55	44	281	124	25	184	35	7	55	6	2	13	1	5	2		1
29	1,014	5	6	6	30	7	25	107	37	29	213	97	22	215	45	16	81	21	4	30	7	5	6		
30	720	3	2	1	20	5	12	76	28	22	141	75	11	133	38	9	67	21	3	30	6	9	6	2	
31	539	4	1		14	4	6	45	11	7	103	41	10	120	30	5	58	19	1	24	14	12	6	2	2
32	343	1	1		11	1	1	30	8	4	52	31	5	58	23	3	51	11	2	18	8	14	7	1	2
33	158	1	1		2	1	2	12	1	3	20	9	2	36	9	1	24	4	1	13	2	5	3	2	4
34	68	1			2	1		2	1	2	11	1		11	4		8	4		6	4	4	1	3	2
35	32				2				1	1	2	1		9	2		6				1	1	1	1	4
36	20						1	2	2	1	2	2		1	1	1	2			1	2		2		
37	5										1						1					2	1		
38	4															1	2		1						
39 and over	1																			1					
Number measured	6,354	33	71	72	416	88	247	1,004	248	262	1,314	493	114	925	208	51	394	88	16	143	46	59	36	11	15
Not measured	91																								
Total	6,445																								
Mean transverse pelvic diameter ... cm.		27.97	26.39	25.93	26.92	27.36	27.02	27.52	28.07	27.43	28.26	28.75	28.36	29.26	29.75	29.43	29.98	30.33	29.81	30.41	31.24	31.17	31.19	32.73	
Breeches group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Transverse pelvic diameter: Mean, 28.42 centimeters.

TABLE CXXIV.—*Association between breeches groups and knee height, colored troops, demobilization.*

Knee height, in centimeters.	Total.	Waist circumference, in centimeters.																						
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104–109
37	29			4	1		6	3		2	6		1	2						2		1		1	
38	35			2	4		2	5		5	9	2	1	4								1			
39	39			2	3		5	7		2	8		4	6			1		1						
40	67		2	1	10	3	5	6	1	5	13	3	3	6	1	1	5			1		1			
41	1,091		2	7	10	1	9	23		6	18	4	2	20			1	1		3			1		1
42	171	1	3	6	19		20	25	6	23	27	11	3	7	2	5	7		1	2		1	2		
43	232	2	5	6	28		23	44	3	24	39	4	6	25	1	7	10		1	1		1	2		
44	395	2	5	11	43		29	63	9	21	80	10	17	51	5	9	27		3	4		2		2	2
45	534	2	8	8	42	7	34	109	9	34	121	15	12	67	1	5	32	2	3	17		4	2		
46	623	2	5	5	42	7	31	115	11	39	147	25	20	96	7	7	35	6	1	16		2	3	1	
47	771	5	8	6	39	9	16	147	25	20	175	55	17	120	16	5	59	8	3	14	3	10	6	2	3
48	789	8	4	1	33	6	12	197	39	23	174	50	9	120	20	3	46	10	1	19	3	7	2		2
49	511	5	5	2	26	10	4	59	30	8	137	48	5	77	22		40	7		12	4	7	3		
50	432	2	3		12	7	6	22	28	5	92	56	4	87	30		38	9		12	9	2	6	2	
51	320		2		8	8	1	15	19	5	59	39		83	19	1	31	6		15	3	2	2		2
52	235	1			7	8	1	8	18	5	33	54		29	22	2	19	9		7	7	4			1
53	143	1			4	1		4	9	1	15	32	2	26	17		8	5		5	8	1	2	1	1
54	98				2	1		3	2	1	15	21		14	16		4	7		2	3	5		1	1
55	50				1			1	2	1	9	9		11	5		2	5			4				
56	34							1	1		6	4		5	6		2	4				2	2	1	
57	19				1	1		1			4	3		3	4		1	1							
58	9				1				1			2		1			1	3							
59 and over	24							5	1	1	5	3		2	4	1	1			1					
Number measured	5,669	31	52	61	336	69	204	863	214	231	1,192	450	106	862	198	46	370	83	14	133	44	53	33	11	13
Not measured	776																								
Total	6,445																								
Mean knee height .. cm.		47.32	45.73	43.30	45.79	48.36	44.36	46.40	48.68	45.26	47.19	49.65	45.35	47.79	50.49	45.37	47.81	50.64	44.72	47.82	51.23	48.19	48.00	47.83	
Breeches group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Knee height: Mean, 47.30 centimeters.

TABLE CXXV.—*Association between breeches groups and circumference of thigh, colored troops, demobilization.*

Thigh circumference, in centimeters.	Total.	Waist circumference, in centimeters.																							
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104–109
42	6		2	1	1				1		1														
43	10		1		3	1		1			1	1		2											
44	13	1	3		1	1			1	1	3	2													
45	29		5	2	6	2	2	3	2	2	2	2		1											
46	44	3	5	5	11	2		8	3	1	2	1					2		1						
47	71	2	9	3	14	3	9	13	5	1	9	1		1								1			
48	141	2	12	9	34	12	9	35	8	2	8	5		1	3	1									
49	224	1	7	13	50	8	9	65	17	5	25	12	3	4	2		2						1		
50	420	2	6	13	70	14	25	109	26	15	62	27	8	30	3		5	1		1		2			1
51	557		4	7	63	13	40	154	29	17	133	44	2	23	6	2	13			5		2			
52	683		6	8	60	3	35	160	45	30	157	54	6	76	13	3	19	2		5	1				
53	766	1	2	3	33	9	36	163	34	44	189	77	11	104	24	2	25	3	2	3		1			
54	735	4	2	3	30	8	27	116	18	42	209	77	15	109	19	3	27	11		7	5	1		2	
55	651	1	1	2	12	4	19	72	25	28	155	65	16	148	32	9	38	11		11			1		1
56	567		2	2	17	2	19	43	15	27	140	48	12	125	30	3	45	12	1	17	3		4		
57	384		1	1	5	4	7	37	7	20	84	35	5	90	19	5	39	7	3	12	1	2			
58	346	2	2		3	1	5	14	3	8	64	25	15	90	25	7	45	7	1	11	7	9	2		
59	224						8	9	1	11	36	5	10	55	14	4	38	10		9	7	4	2	1	
60	162				1			3	2	3	16	6	4	39	11	6	34	10	3	12	3	6	3		
61	99				1	1		3	2	1	8	2	1	22	5	1	19	3	1	17	5	4	3		
62	84				2			1	1	1	5	3	2	12	3		17	8	2	12	6	5	3		1
63	48							1			2	1	1	3		2	14	1	1	5	4	11			2
64	28							1			1	1		2	1	1	6	1		5		5	3	1	
65	29										3			1	1	2	3			8	2	3	4	1	1
66 and over	46										2		1	4		1	4	1		6	2	3	10	5	7
Number measured	6,367	19	70	72	417	88	250	1,011	245	259	1,317	494	112	942	211	52	395	88	15	146	46	59	36	10	13
Not measured	78																								
Total	6,445																								
Mean thigh circumference ... cm		50.58	48.94	49.93	50.96	50.97	52.53	52.35	52.29	53.87	53.94	53.81	55.40	55.47	55.69	57.13	57.06	57.40	57.67	58.66	59.50	60.14	61.75	62.87	
Breeches group designation		1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Thigh circumference: Mean, 54.08 centimeters; standard deviation, 3.72±0.0330 centimeter.

TABLE CXXVI.—*Association between blouse groups and suprapatella circumference, colored troops, demobilization.*

Suprapatella circumference, in centimeters.	Total.	Waist circumference, in centimeters.																							
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104–109
32	85	2	8	5	17	10	4	15	5	3	5	3	......	2	3	2	1	......	......	......	......	......	......	......	......
33	188	3	16	8	50	5	9	44	11	9	16	8	......	4	1	1	......	......	......	......	1	2	......	......	......
34	378	3	12	12	65	11	19	98	25	10	59	36	3	12	5	......	6	......	2	......	......	......	......	......	......
35	650	6	13	14	92	16	38	192	41	29	101	43	9	34	6	1	9	3	......	......	2	1	......	......	......
36	846	1	10	11	75	16	47	181	52	44	209	64	7	75	16	2	24	4	1	3	1	......	2	......	1
37	1,042	5	3	10	60	13	53	203	44	53	270	92	10	134	34	6	35	6	1	5	1	1	2	......	1
38	1,010	5	3	8	31	7	44	136	37	41	241	94	32	200	41	4	39	17	2	15	2	6	4	1	......
39	763	3	1	5	14	2	20	62	16	33	173	75	12	176	41	12	73	9	......	18	8	6	2	2	......
40	590	4	......	1	11	4	9	45	9	23	126	45	13	143	28	8	64	16	2	21	5	8	4	......	1
41	369	1	3	......	4	2	4	21	5	9	60	17	15	80	20	4	64	16	3	23	9	3	6	......	......
42 and over	522	1	1	......	6	2	4	21	4	11	70	19	14	89	16	12	81	17	5	62	17	33	17	8	12
Number measured	6,443	34	70	74	425	88	251	1,018	249	265	1,330	496	115	949	211	52	396	88	16	147	46	60	37	11	15
Not measured	2	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	6,445	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean suprapatella circumference ...cm.	......	36.65	34.80	35.50	35.59	35.75	36.65	36.48	36.43	37.32	37.66	37.48	38.66	38.62	38.45	39.12	39.46	39.52	39.38	40.49	40.15	40.48	40.43	41.12	
Breeches group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Suprapatella circumference: Mean, 37.61 centimeters; standard deviation, 2.43±0.0214 centimeter.

TABLE CXXVII.—*Association between breeches groups and circumference at patella, colored troops, demobilization.*

Patella circumference, in centimeters.	Total.	Waist circumference, in centimeters.																							
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104–109
31 and under	53	......	......	3	4	......	3	3	......	2	8	4	1	4	3	1	8	3	......	1	3	......	1	......	1
32	83	1	13	4	15	6	4	14	5	4	6	1	1	5	......	2	......	1	......	......	......	......	1	......	......
33	249	4	15	16	53	8	22	52	9	19	29	7	1	5	4	......	1	1	......	......	......	2	......	1	......
34	575	4	12	20	106	14	50	144	23	30	97	25	7	27	2	2	9	......	1	2	......	......	......	......	......
35	1,030	4	18	15	110	14	65	279	46	63	215	61	15	72	8	5	26	2	3	6	......	2	1	......	......
36	1,207	4	4	10	63	23	55	242	64	59	312	94	27	145	26	6	52	6	1	3	......	5	5	......	1
37	1,270	8	6	5	49	16	36	164	49	45	311	130	27	250	44	6	71	18	4	17	3	7	2	1	1
38	941	3	1	1	16	3	8	80	31	25	209	93	20	230	43	14	73	21	3	36	13	10	7	1	......
39	574	4	......	......	6	3	5	29	17	14	98	56	10	117	47	9	79	14	4	32	11	11	6	1	1
40	308	1	1	......	1	......	2	9	4	2	37	19	5	75	29	4	50	15	......	28	6	12	3	3	2
41 and over	154	1	......	......	2	1	1	2	1	2	8	6	1	19	6	3	27	7	......	22	10	11	11	4	9
Number measured	6,444	34	70	74	425	88	251	1,018	249	265	1,330	496	115	949	212	52	396	88	16	147	46	60	37	11	15
Not measured	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	6,445	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean patella circumference, cm	......	36.21	34.19	34.28	34.95	35.39	35.27	35.67	36.18	35.81	36.49	36.87	36.70	37.34	37.78	37.35	37.77	37.97	37.06	38.67	38.63	38.58	38.46	39.35	
Breeches group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Patella circumference: Mean, 36.52 centimeters; standard deviation, 1.99±0.0175 centimeter.

TABLE CXXVIII.—*Association between breeches groups and circumference of calf, colored troops, demobilization.*

Calf circumference, in centimeters.	Total.	Waist circumference, in centimeters.																						
		63 and under.	64–67	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95	96–99	100–103	104 and over.
29	22	......	2	1	2	1	......	1	1	......	6	1	1	3	1	......	......	1	......	1	......	......	......	......	......
30	99	1	8	2	23	1	7	18	6	4	8	5	......	5	1	1	4	1	......	2	......	1	......	......	1
31	325	5	18	23	68	15	23	69	19	13	36	7	3	10	1	1	8	1	1	1	......	2	......	1	......
32	537	2	17	16	89	19	44	134	29	25	87	31	3	28	1	......	7	2	......	2	......	......	1	......	......
33	848	7	9	14	94	18	52	216	50	42	157	77	9	65	12	5	12	3	......	3	......	2	1	......	......
34	1,141	4	7	6	69	17	50	242	54	56	274	104	14	154	25	1	40	5	3	8	1	5	2	......	......
35	1,163	5	4	9	47	12	42	171	47	59	291	101	27	174	44	10	76	9	4	21	5	2	3	......	......
36	974	2	2	2	18	4	24	107	28	34	253	87	27	206	40	8	66	19	1	25	6	7	7	......	1
37	734	5	2	......	7	......	8	46	11	22	134	57	15	188	50	12	94	25	1	29	12	10	5	1	......
38	342	2	......	......	5	......	......	9	2	7	62	20	11	82	25	6	46	11	2	21	12	10	7	......	2
39 and over	259	1	1	1	3	1	......	5	2	3	22	6	5	34	12	8	43	11	4	34	10	21	12	9	11
Number measured	6,444	34	70	74	425	88	250	1,018	249	265	1,330	496	115	949	212	52	396	88	16	147	46	60	38	11	15
Not measured	1	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	6,445	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mean calf circumference, cm	......	34.21	32.29	32.51	32.97	33.03	33.51	33.82	33.84	34.34	34.79	34.75	35.44	35.54	35.92	36.19	36.08	36.30	36.13	36.65	37.28	36.98	37.08	38.08	
Breeches group designation	......	1	2	3 s.	3 m.	3 l.	4 s.	4 m.	4 l.	5 s.	5 m.	5 l.	6 s.	6 m.	6 l.	7 s.	7 m.	7 l.	8 s.	8 m.	8 l.	9	10	11	

Calf circumference: Mean, 34.71 centimeters; standard deviation 2.10±0.0125 centimeter.

TABLE CXXIX.—*Comparative frequency distribution of "blouse" groups, by States of nativity, white troops (absolute numbers).*

State.	Total.	Chest circumference (rest), in centimeters.																					
		68-77	78-81 s.	78-81 m.	78-81 l.	82-85 s.	82-85 m.	82-85 l.	86-89 s.	86-89 m.	86-89 l.	90-93 s.	90-93 m.	90-93 l.	94-97 s.	94-97 m.	94-97 l.	98-101 s.	98-101 m.	98-101 l.	102-105	106-109	110 and over.
Alabama	1,532	17	14	71	19	31	189	106	79	344	104	39	227	96	17	105	23	7	24	6	11	3	
Alaska	12									3			4			1		1			3		
Arizona	127	1		3	3	1	6	12	10	17	7	3	19	10	1	21	5	1	3	1	1	1	1
Arkansas	2,257	26	20	101	37	40	304	187	125	525	185	44	312	143	7	127	25	5	25	8	7	2	2
California	466	6	4	16	4	6	52	19	34	98	21	21	63	25	5	58	7	5	16	2	3	1	
Colorado	218		1	7	2	2	23	17	12	43	12	4	44	12	5	26		1	3	1	1	1	1
Connecticut	977	12	10	32	8	32	135	32	83	197	39	51	147	41	15	77	14	11	29	3	7	1	1
Delaware	275	2	2	8	4	4	26	12	28	63	18	12	41	9	2	28	4	1	8	1	2		
District of Columbia	190	2	2	11	1	5	28	13	14	37	13	6	29	9	1	12			2		3	2	
Florida	746	11	7	41	12	16	113	43	43	151	44	20	111	44	11	54	9	8	7	1			
Georgia	2,383	16	15	100	37	37	348	152	103	567	155	58	355	164	19	156	36	8	33	12	8	4	
Idaho	187	1	1	5	2	2	13	5	6	31	6	7	29	17		18	6	2	8		1	27	
Illinois	6,490	65	41	162	58	120	721	314	354	1,223	258	287	1,073	352	126	778	107	66	251	43	76	11	4
Indiana	3,816	40	21	172	34	59	575	251	190	874	239	99	540	223	41	281	45	13	65	16	34	2	2
Iowa	1,570	5	6	46	7	24	170	58	85	293	102	46	254	112	22	215	32	12	45	11	21	3	1
Kansas	961	10	2	33	14	7	87	45	30	211	54	28	181	83	7	93	15	9	22	15	12	3	
Kentucky	2,718	34	23	128	48	54	377	192	140	653	177	55	365	146	17	190	27	11	44	12	17	6	2
Louisiana	1,318	5	8	47	12	19	191	50	80	297	58	49	242	79	8	101	23	8	22	5	8	3	3
Maine	694	8	7	21	3	13	94	34	38	134	34	28	119	36	6	75	6	8	14	4	5	6	2
Maryland	1,005	21	15	63	16	35	148	55	59	205	28	39	160	33	6	64	10	11	19	5	6	6	1
Massachusetts	4,750	45	33	212	49	130	725	217	299	960	187	200	765	198	46	416	38	45	109	23	41	7	5
Michigan	3,660	27	25	120	36	68	385	155	266	728	155	172	657	183	56	386	47	40	92	26	25	6	5
Minnesota	1,915	7	7	29	9	28	171	77	88	368	93	71	352	130	34	249	38	15	95	24	28		2
Mississippi	1,556	12	3	39	18	35	160	90	76	333	95	36	290	124	16	130	25	12	35	11	13	2	1
Missouri	2,685	25	21	120	53	43	388	216	131	599	186	50	360	150	28	182	34	16	44	11	21	3	4
Montana	266	1	1	8	2	2	12	11	13	64	16	6	58	11	3	33	8	1	10	1	4		1
Nebraska	809	8	4	16	4	17	68	37	33	147	39	24	149	65	9	101	19	10	38	9	10	1	1
Nevada	18		1	1			1		1	2	1	1	5	3		2							
New Hampshire	410	4	3	23	2	11	60	21	19	97	14	15	72	16	6	28	2	3	10		4		
New Jersey	3,102	29	46	138	33	114	474	118	251	620	109	143	467	121	50	231	15	24	60	15	31	10	3
New Mexico	226	1	5	10	2	7	25	15	9	42	15	8	41	18	2	18	1	1	2	2		1	1
New York	9,001	101	118	391	85	312	1,280	393	780	1,771	276	460	1,362	312	146	714	70	99	193	32	76	22	8
North Carolina	1,188	15	8	26	11	13	133	56	54	254	66	35	210	73	15	127	20	10	41	9	9	1	2
North Dakota	365	1		1		2	34	16	18	59	14	17	85	31	5	52	7	7	12	2	2		
Ohio	6,927	71	47	226	73	165	954	345	462	1,567	342	229	1,130	333	84	585	68	49	120	30	36	9	2
Oklahoma	2,195	19	11	66	29	30	241	199	88	516	215	29	310	179	11	120	42	7	46	13	13	8	3
Oregon	1,061	4	9	16	8	10	79	36	49	233	60	39	222	88	11	121	22	9	31	5	8	1	
Pennsylvania	10,639	78	114	396	98	303	1,404	395	975	2,194	378	493	1,726	368	188	942	81	99	241	41	87	26	12
Rhode Island	397	1	7	21	6	11	56	19	28	80	10	21	60	18	4	32	2	7	7	2	2	3	
South Carolina	630	3	8	23	6	8	93	40	31	137	34	12	103	36	7	52	11	4	11	7	2	2	
South Dakota	409	1	1	1	4	3	41	14	15	79	19	13	83	24	7	68	11	1	17	3	3		1
Tennessee	2,563	18	20	85	26	42	336	146	113	580	164	84	407	176	17	217	43	7	52	14	16		
Texas	3,809	31	13	99	53	50	407	250	142	793	316	81	600	309	24	371	83	22	72	36	39	15	3
Utah	102				1	1	11	6	5	17	6	6	19	11		11	3		3	1		1	
Vermont	441	3	3	8	3	8	62	24	24	96	20	14	84	13	1	51	7	3	9	2	5	1	
Virginia	1,406	11	14	35	11	37	138	70	79	282	82	46	265	99	21	122	10	11	48	6	12	4	3
Washington	1,998	15	7	45	18	31	173	83	103	392	113	64	382	150	23	244	35	15	67	12	19	5	2
West Virginia	1,640	9	12	33	16	22	159	81	82	332	76	63	329	113	14	174	27	7	51	12	21	5	2
Wisconsin	2,640	11	8	52	12	42	219	91	139	432	113	128	474	140	60	417	47	53	142	16	41	3	
Wyoming	74	2			1	1	10	1	4	10	4	3	15	7		11	1		2	2			
Others	1,043	9	10	35	10	24	117	35	76	213	47	50	174	42	15	114	10	10	32	3	11	5	1
Grand total	95,867	844	758	3,342	1,000	2,077	12,016	4,854	5,966	19,963	4,819	3,509	15,571	5,175	1,219	8,801	1,221	775	2,332	515	805	223	82

TABLE CXXX.—*Comparative frequency distribution of "blouse" groups, by States of nativity, colored troops (absolute numbers).*

State.	Total.	Chest circumference (rest), in centimeters.																				
		68-73	74-77	78-81 s.	78-81 m.	78-81 l.	82-85 s.	82-85 m.	82-85 l.	86-89 s.	86-89 m.	86-89 l.	90-93 s.	90-93 m.	90-93 l.	94-97 s.	94-97 m.	94-97 l.	98-101 s.	98-101 m.	98-101 l.	102-109
Alabama	396	2	3	8	17	2	20	51	17	28	95	9	13	82	13	6	15	66	1	3	3	2
Alaska	1																	1				
Arizona	4							1		1			1		1							
Arkansas	310	2	4	6	9	2	8	54	8	15	95	15	1	53	11	4	12	5	1	3		2
California	21				1	1		3	1	1	3	1		3	1	1	3	1		1		
Colorado	4				1		1				1			1								
Connecticut	10							1			1	2		2	1		1			2		
Delaware	25				2		1	4	1	1	3		3	7			1	1		1		
District of Columbia	39		1		1		4	11	3	1	6	3	1	5	1			1		1		
Florida	271		6	6	24	3	21	53	12	21	53	9	6	26	10	4	7	5	2	1	2	
Georgia	1,038	3	7	21	51	7	58	166	40	85	248	25	32	169	26	21	43	16	3	13		4
Idaho																						
Illinois	120	1	1	2	3		3	20	5	9	23	2	4	18	8	1	9	6		3		1
Indiana	67	1		1	2	2	3	10	4	3	20	3	2	8		1	1	4		2		
Iowa	18		3		1			1			6	1	1	3	1			1				
Kansas	35			1		1	1	7	5	2	8	1		4		1	2	2				
Kentucky	187	1	4		8		7	30	11	15	44	11	3	33	3	5	4	2		4	1	1
Louisiana	691	2	10	10	24	4	22	90	20	55	172	27	17	139	27	16	32	8	1	11	1	3
Maine																						
Maryland	137		3	3	7	1	9	15	4	12	37	2	3	18	3	3	7	5	1	3		1
Massachusetts	21						1	3	2	1	6	1	1	6								
Michigan	44				5			4	3		14	3	1	6	3		4			1		
Minnesota	13						1	1			5			2	2		1			1		
Mississippi	477	2	2	7	7	4	19	62	13	27	125	12	11	91	19	11	33	15	1	13	2	1
Missouri	120		1		7	3	6	28	4	9	22	7	5	15	2		7	3				1
Montana																						
Nebraska	13				1			2	2	1	1	1	1		1		2	1				
Nevada																						
New Hampshire	1							1														
New Jersey	47		2	2	4		2	13	1	2	4	1	4	2	4			3	1	1		1
New Mexico	28				1			1	3	1	7			7	4		3	1				
New York	111			1	10	1	4	19	5	8	28	4	2	16	4	1	5	1		1	1	
North Carolina	630	4	3	10	16	1	28	69	9	67	156	20	21	107	16	11	56	14		14	2	6
North Dakota	6									1	2			2	1							
Ohio	123		1	2	2	2	4	20	1	6	34	6		17	10	1	10	2	2	1	1	1
Oklahoma	122	1		2		4	1	18	3	3	32	10	1	21	7	2	7	6		1	1	2
Oregon	7				1			1	1				1	3								
Pennsylvania	144		2	3	4		7	25	7	12	32	6	6	21	5	1	6	4		2		1
Rhode Island	2				1						1											
South Carolina	197		2	3	16	1	10	33	2	14	49	4	5	38	1	7	5	5	1	1		
South Dakota	12					1		2		1	1			3	2		1	1				
Tennessee	237	2	1	2	11		13	40	9	20	55	7	6	45	5	4	9	2	1	3		2
Texas	556		4	3	18	5	14	55	24	26	137	18	15	106	30	7	45	24	4	14	4	3
Utah	1																					1
Vermont	2										1						1					
Virginia	532	1	3	3	14	6	18	56	20	32	139	10	15	98	21	12	45	13	6	8	6	6
Washington	10									1	4			2	1		1				1	
West Virginia	42			2	1		1	5	2		8	3	3	7	3		3	2		2		
Wisconsin	13									1	5				2		1			3	1	
Wyoming	1																	1				
Others	68		1	1	4	1		7	3	3	17	2	1	10	4	2	7	2		3		
Grand total	[a]6,954	22	64	99	274	52	287	982	245	485	1,700	227	186	1,196	253	122	389	164	25	117	26	39

[a] Includes 499 mixed races which were not previously counted, and includes 100 for whom there were no measurements: 6,954−599=6,355.

TABLE CXXXI.—*Comparative frequency distribution of "breeches" groups, by States of nativity, white troops (absolute numbers).*

State.	Total.	Waist circumference, in centimeters. 60–63 a.	64–67 a.	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95 a.	96–99 a.	100–103 a.	104 and over a.
Alabama	1,540	3	16	9	84	20	16	229	68	47	293	120	30	267	54	11	138	36	3	52	12	21	6	2	3
Alaska	12					1		1	1					2			3	1		1	1	1			
Arizona	125		1		7	3	2	16	5	5	22	11	3	23	5	1	8	1	1	4	1	4			1
Arkansas	2,254	4	21	111	186	37	15	361	101	52	444	209	27	354	83	13	165	47	5	69	19	22	7	1	1
California	469	4	6		39	7	7	93	19	19	85	40	8	60	15	3	24	7	3	13	4	10	3		
Colorado	217	1	2	1	21	4	4	40	5	4	38	11	6	38	9		15	3	1	9	3	1			1
Connecticut	983	5	16	32	78	9	44	179	20	91	173	29	33	136	10	14	54	14	6	22	5	7	4	2	
Delaware	275	3	8	4	17	1	6	49	10	15	58	15	11	43	4		19	1	2	4		4	1		
Dist. of Columbia	194	1	7	1	15	2	6	38	12	9	37	15	5	26	2	1	6	1	2	2		3	1	1	1
Florida	752	2	8	7	48	10	18	129	33	20	142	50	16	121	26	13	53	11	5	22	5	9	3	1	
Georgia	2,391	7	21	21	162	35	37	407	101	71	450	168	34	382	76	17	202	48	5	75	29	27	8	5	3
Idaho	161	1	3	1	8	5		27	4	4	25	10	3	33	8	2	13	3	3	4	1	3			
Illinois	6,549	36	126	65	455	111	141	1,067	317	260	1,140	469	173	905	166	72	506	97	32	199	52	107	35	14	4
Indiana	3,823	17	81	52	395	50	108	853	126	198	723	183	96	439	55	41	203	30	14	66	9	43	18	11	3
Iowa	1,579	4	19	17	85	5	58	274	40	117	270	59	66	253	27	27	128	15	18	47	6	27	14	3	
Kansas	964	1	14	11	49	9	19	175	28	55	184	41	34	149	16	17	78	10	5	34	10	12	9	3	1
Kentucky	2,747	15	62	30	322	49	54	605	121	86	514	156	73	339	49	20	134	21	7	44	13	22	6	3	2
Louisiana	1,355	2	6	8	60	8	18	219	26	64	343	58		248	20	17	124	24	6	64	6	14	13	7	
Maine	687	5	5	28	45	2	34	129	13	64	134	18	28	88	7	10	35	2	4	16	1	10	9		
Maryland	1,014	6	38	25	97	10	28	196	23	58	182	35	33	142	11	15	53	10	3	19	4	13	9	1	3
Massachusetts	4,748	33	114	150	401	28	279	992	110	405	818	108	188	539	33	78	214	21	36	94	16	48	24	13	6
Michigan	3,640	19	58	70	279	33	126	702	100	221	635	148	134	526	56	39	223	31	20	132	13	41	25	5	4
Minnesota	1,925	8	21	21	100	15	57	252	53	117	350	82	87	322	41	53	163	23	13	80	10	34	14	7	2
Mississippi	1,610	5	5	4	52	5	17	218	47	37	318	96	26	324	49	16	216	41	1	63	23	34	9	3	1
Missouri	2,674	15	45	30	271	41	50	556	101	114	495	147	67	368	54	22	147	21	10	66	11	21	16	2	4
Montana	263	1	2		12	12	5	34	11	8	32	29	4	42	10	3	23	9	1	11	3	6	3	1	1
Nebraska	804	6	9	18	41	2	23	106	23	70	141	24	27	141	10	24	74	10	8	24	2	9	9	3	
Nevada	17				1			2		2	4	2		2	1		3								
New Hampshire	411	4	10	17	44	6	22	77	5	29	78	9	9	50	4	9	16	1	4	7		7	2		1
New Jersey	3,119	17	80	65	256	26	135	627	75	216	556	120	119	401	44	44	161	23	15	71	5	36	12	12	3
New Mexico	225	2	3	3	14	1	4	39	8	9	45	8	6	47	2		18	5		7		2		2	
New York	9,060	46	206	210	788	93	420	1,764	264	645	1,540	332	352	1,073	136	126	519	74	46	180	31	116	58	21	20
North Carolina	1,194	5	14	4	76	13	8	190	53	31	212	95	8	196	53	6	97	33	5	39	11	28	14	2	1
North Dakota	349	2	1	2	17	3	11	58	6	37	65	5	12	65	6	3	28	4	2	12		10			
Ohio	6,772	42	118	164	567	53	230	1,358	194	461	1,253	220	260	944	105	96	422	54	35	165	23	67	25	11	5
Oklahoma	2,199	11	16	7	148	33	14	323	90	45	490	173	28	389	63	21	164	38	5	79	19	25	15	2	1
Oregon	1,052	5	8		48	18	5	126	96	8	128	172	6	126	77	3	80	56	2	35	23	23	7		
Pennsylvania	10,607	41	158	172	788	73	400	1,981	231	705	2,047	348	444	1,492	134	177	689	75	71	283	45	138	79	24	12
Rhode Island	398	1	8	9	40	3	19	87	7	34	60	8	20	40	4	9	29	1	3	8		5		2	1
South Carolina	630		5	5	34	7	8	108	33	16	131	39	16	95	22	2	56	18	4	7	10	8	5	1	
South Dakota	407	2	2	3	18	1	7	62	5	28	72	15	25	71	9	7	49	5	3	13	3	6		1	
Tennessee	2,566	9	25	7	128	22	23	413	92	95	508	190	36	464	92	21	249	47	11	71	20	25	14	4	
Texas	3,845	13	32	14	233	55	34	612	193	102	808	339	75	635	129	19	266	68	6	115	24	42	16	9	6
Utah	104		1	1	6		2	16	4	4	23	11	3	17	1	1	8	2		2	2				
Vermont	442	6	5	12	28	1	21	97	6	38	84	7	19	57	4	6	22	3	4	10		9	1	2	
Virginia	1,423	4	21	12	94	15	23	237	58	37	267	94	21	260	51	8	90	39	4	37	16	20	8	5	2
Washington	197	11	22	9	96	55	6	235	190	26	273	291	11	223	138	3	131	103	6	74	48	31	11	3	1
West Virginia	1,639	10	26	10	85	17	24	291	35	90	313	85	38	267	56	8	119	39	4	56	11	26	17	2	
Wisconsin	2,643	13	20	22	144	42	53	375	115	105	429	191	84	415	83	30	230	69	17	115	23	43	20	3	2
Wyoming	79	1		1	8			17	1	1	11	7	3	13	3	1	6	2		3	1				
Others	1,124	5	5	26	84	7	43	206	34	82	197	50	31	150	27	18	60	10	9	28	8	3	5		36
Grand total.	96,157	454	1,500	1,391	7,074	1,058	2,684	17,248	3,323	5,057	17,649	5,142	2,838	13,802	2,140	1,147	6,533	1,307	470	2,653	582	1,223	555	194	133

TABLE CXXXII.—*Comparative frequency distribution of "breeches" groups, by States of nativity, colored troops (absolute numbers).*

State.	Total.	Waist circumference, in centimeters. 63 and under.	64–67 a.	68–71 s.	68–71 m.	68–71 l.	72–75 s.	72–75 m.	72–75 l.	76–79 s.	76–79 m.	76–79 l.	80–83 s.	80–83 m.	80–83 l.	84–87 s.	84–87 m.	84–87 l.	88–91 s.	88–91 m.	88–91 l.	92–95 a.	96–99 a.	100–103 a.	104 and over.
Alabama	393		7		21	7	9	53	21	17	76	39	11	61	20	1	28	3	1	11	2	2	3		
Alaska	1											1													
Arizona	4										3			1											
Arkansas	306	1	3	2	21	5	11	39	17	5	64	26	7	54	11	3	18	4	2	6	3	1	2		1
California	22				3		1	5	2					4			1			2		2			
Colorado	5							1		1	3														
Connecticut	10								1	1	3			2			2			1					
Delaware	25							5	1	1	9	3		4			2								
District of Columbia	40		1	1	3		1	12	1	4	5	2		7	3										
Florida	270		3	5	26	2	11	49	6	9	55	27	5	37	4	2	12	2	1	6	1	6		1	
Georgia	1,034		13	10	57	21	51	173	53	41	181	98	13	150	38	11	59	13	4	24	6	8	8	1	1
Idaho																									
Illinois	118	1	3	3	6	4	6	13	3	8	27	6	4	18	1	1	4	2		1	2	2	3		
Indiana	66		1	4	5	1	5	20	3	4	6	4	2	3	1		3		1	1		1			1
Iowa	17		2				2	1	1	1	4	1	1	3			1								
Kansas	34			1	4	1	4	8	2	4	1		1	2		1	4							1	
Kentucky	187		7	1	22	3	8	37	9	5	39	12	2	27	1	1	7	1		3		2			
Louisiana	704		8	7	29	10	24	96	16	25	186	46	18	123	20	6	47	5	3	17	6	5	5	1	1
Maine																									
Maryland	135		2	4	7	2	11	24	5	7	24	12	2	16	2	3	7	2		2		1	1		1
Massachusetts	21						3		2	8		1	2		1	1									
Michigan	44			2	2	1	7	8	1	3	8	2		3		1	2			1		1	2		
Minnesota	13			1	1		1	1			2		1	1		2	1	1				1			
Mississippi	493			7	15	4	11	52	8	15	115	33	15	92	18	3	57	19		18	2	7	2		
Missouri	120		1	1	16	2	9	30	1	4	24	5	4	9	3	1	5	1		3					1
Montana																									
Nebraska	13		1	1	1	2	1				1	2	1	1	1		1								
Nevada																									
New Hampshire	46			2	3	2	3	11	1	5	7	1	1	1	2	3	2		1			1			
New Jersey	1																		1						
New Mexico	26	1		2	1		3	2		4	3	1	5	2		1			1						
New York	113		3	4	11	1	9	21	5	10	19	2	2	12	2	4	5	1			2				
North Carolina	618		4	3	28	13	9	101	28	14	126	62	5	98	32	4	35	13		13	9	9	4	2	3
North Dakota	6							2		1	1			2											
Ohio	120	2	3	2	11	5	6	22	7	13	19	5	6	10	2	1	3			1		1	1		
Oklahoma	119				5	1	3	17	5	4	26	6	2	17	5	1	12	1	2	8	1	2	1		
Oregon	6						1	2			1	1		1											
Pennsylvania	144		4	4	12	4	14	19	5	9	24	11	4	16	1	3	9			1	1	1	1		1
Rhode Island	2						1										1								
South Carolina	198	1	1	2	17	3	8	32	7	7	52	14	5	19	4	2	10	5		5	1	2	1		
South Dakota	13				1		1	1		1	5			1			2		1						
Tennessee	231	2	4	1	10	8	8	40	16	6	44	18	7	33	8	4	7	4		9		2		2	1
Texas	553		4	6	30	9	14	79	21	25	131	31	11	88	20	6	38	10	1	17	5	4	1	1	1
Utah	1																						1		
Vermont	2						1													1					
Virginia	532		2	5	28	10	18	83	24	30	106	41	9	70	20		39	10	3	10	4	6	6	3	2
Washington	10							3			2		1				2			1		1			
West Virginia	42				2	1	1	9		5	7	6		3	3	1	2			1	1				
Wisconsin	13									1	2	1	1	3			2			2	1				
Wyoming																									
Others	70			2	1	1	6	12	2	5	9	1	3	8	3	2	4				2	3	2	1	3
Grand total	[a]6,944	8	77	83	399	123	282	1,089	272	297	1,430	523	150	1,004	225	69	435	97	22	165	49	71	44	13	17

[a] Includes 499 mixed races which were not previously counted: 6,954—499=6,445.

TABLE CXXXIII.—*Comparative frequency distribution of height, by States, white and colored troops, at demobilization.*

State.	Total.	Height, in centimeters.																													Mean height.
		148–149	150–151	152–153	154–155	156–157	158–159	160–161	162–163	164–165	166–167	168–169	170–171	172–173	174–175	176–177	178–179	180–181	182–183	184–185	186–187	188–189	190–191	192–193	194–195	196–197	198–199	200–201	202–203	204–205	
																															Cm.
Alabama	1,930		2		1	5	8	33	54	79	92	150	211	239	258	224	205	148	90	63	23	23	12	6	2		2				174.16
Alaska	13												1	1	5	2	1	2		1											176.35
Arizona	130			1				2	8	4	10	11	11	11	23	12	13	7	9	6	2										173.55
Arkansas	2,576	1	1	1	5	4	15	31	71	118	173	237	293	310	308	292	247	187	120	67	49	22	14	6	1		3				173.76
California	481				2	1	5	13	17	29	39	48	57	58	68	50	27	22	22	8	9	5		1							172.49
Colorado	225						3	1	3	14	21	19	29	25	37	27	22	13	2	1	5	1	2								173.02
Connecticut	996	1	1	1	9	17	25	51	69	82	92	91	112	91	119	92	60	33	20	17	9	2			1	1					170.38
Delaware	300				1	1	7	13	16	29	34	32	26	40	27	29	18	9	11	3	1	1	1	1							170.83
District of Columbia	231					2	5	8	13	13	20	21	27	26	30	23	18	13	8	3							1				171.70
Florida	1,022		1		2	4	11	12	38	48	76	101	126	121	107	107	114	53	34	26	16	11	7	3		2	1	1			173.28
Georgia	3,397	1	1	3	3	6	23	54	97	141	214	280	382	408	399	343	375	241	167	124	79	28	17	5	3	2				1	174.01
Idaho	164					1	1	1	4	7	15	15	19	21	19	16	21	10	7	5		1	1								173.39
Illinois	6,687	2	5	5	23	51	84	172	264	451	615	724	854	797	788	637	472	320	172	110	76	36	10	13	2	2	2				171.83
Indiana	3,944		1	3	9	15	44	76	161	265	352	453	520	477	470	371	275	190	105	72	37	28	7	9	4						172.03
Iowa	1,609				5	6	10	29	34	90	114	168	189	199	177	166	130	107	69	59	31	15	7	1	1	1	1				173.42
Kansas	1,012			1	1		2	11	31	44	73	83	115	150	125	101	90	67	45	33	21	13	1	4		1					173.82
Kentucky	2,921	1	1	1	4	5	30	50	92	138	210	270	352	388	374	345	254	167	111	59	32	18	10	3	3	2	1				173.05
Louisiana	2,070	1		2	1	12	18	44	72	130	170	219	260	276	265	213	140	93	62	37	18	18	12	4	2	1					172.36
Maine	693		1	2	4	12	17	23	39	49	64	87	91	85	73	44	34	36	15	7	3	3		2	2						170.60
Maryland	1,138			1	7	16	30	44	51	89	115	119	149	144	122	96	61	39	22	17	6	7	2			1					170.70
Massachusetts	4,782		7	17	38	68	144	229	336	451	500	550	620	525	460	303	225	158	65	36	29	16	3	1	1						169.60
Michigan	3,715	1	1	8	23	34	61	121	203	288	366	407	478	423	405	325	245	130	90	55	26	17	4	3	1						170.99
Minnesota	1,950	1	2		6	13	13	40	46	91	155	172	198	235	231	239	177	108	78	61	29	38	7	5	1	2	1	1			173.51
Mississippi	2,099	1	1	2	2	11	7	22	58	82	136	161	213	261	265	243	198	162	107	52	57	32	10	9	4	2	1				174.28
Missouri	2,836	1	1	2	7	8	24	49	106	176	202	301	380	359	309	280	245	156	86	62	43	20	9	3	3	3	1				172.66
Montana	264					3	2		9	9	17	27	31	33	36	23	27	24	8	7	5	3									173.60
Nebraska	819			3	1	3	7	17	19	38	50	83	86	83	104	81	78	63	38	26	19	9	7	2		1	1				173.84
Nevada	18						1			1	2	2	4	1	1	2	1		1	2											172.50
New Hampshire	413	1			2	8	11	17	33	36	44	46	63	43	28	35	22	12	5	4	2		1								169.67
New Jersey	3,180	1	5	8	27	58	93	137	221	282	291	370	362	374	313	227	163	102	75	33	15	13	3	5	1				1		169.99
New Mexico	229					5	2	6	12	13	16	23	17	32	33	24	21	7	7	2	7		1	1							172.27
New York	9,207	3	9	27	64	128	255	433	587	842	956	1,095	1,098	1,041	856	628	482	298	179	109	60	30	17	7			1	1		1	169.98
North Carolina	1,815			3	2	9	15	28	59	85	130	172	216	225	226	198	144	117	75	57	24	15	5	6	2	1	1				173.27
North Dakota	358					2	4	9	8	25	33	27	49	50	48	27	25	16	13	11	5	3	2	1							172.61
Ohio	7,076	1	2	10	30	57	107	203	326	474	705	800	941	823	821	646	437	274	196	98	60	39	15	4	4	2		1			171.39
Oklahoma	2,310		1		5	5	8	28	58	88	133	187	264	291	314	274	233	165	118	72	35	23	3	2	2	1					173.84
Oregon	1,069			2	1	3	6	15	33	43	70	83	125	150	122	127	99	76	57	27	13	13	3	1							173.68
Pennsylvania	10,874	3	5	25	71	124	250	462	685	977	1,159	1,268	1,354	1,219	1,058	800	587	349	227	96	79	41	18	6	7	2	1			1	170.21
Rhode Island	403			2	7	2	10	27	36	33	54	46	54	33	36	27	14	8	7	4	1	1	1								169.00
South Carolina	828				1	4	6	24	16	43	57	81	88	101	87	89	79	57	42	21	13	8	6	4					1		173.54
South Dakota	416		1				4	7	13	16	25	38	49	56	40	64	32	20	21	13	9	6	1			1					173.70
Tennessee	2,807	1	1	1	1	1	12	26	75	97	140	243	344	358	353	352	262	215	131	70	60	28	17	14	2	3					174.26
Texas	4,361	2		3	6	10	22	43	96	173	258	367	461	556	519	522	449	340	225	159	78	39	18	9	3	2	1				174.24
Utah	104				1		3	1	2	2	15	4	8	12	18	14	9	7	3	2	2			1							173.21
Vermont	446			2	3	3	9	12	29	36	49	40	57	60	49	44	20	11	14	1	5	1		1							170.67
Virginia	1,920		2	4	4	12	25	32	71	99	137	184	234	239	229	207	167	114	68	51	24	9	5	2	1						172.75

Washington......	2,025	....	....	1	2	11	9	39	59	92	127	201	194	254	231	259	208	109	93	67	32	14	13	4	4	2	....	....	....	....	173.67
West Virginia....	1,686	....	1	....	4	9	12	25	60	92	126	165	179	200	207	181	148	97	73	49	20	22	8	4	2	1	1	....	....	....	173.24
Wisconsin........	2,675	....	3	9	10	13	34	69	108	156	210	290	347	312	299	259	214	136	89	52	38	14	8	3	1	1	....	....	....	....	172.18
Wyoming.........	80	....	....	....	....	1	....	4	1	2	7	8	10	10	11	6	6	8	1	2	2	....	....	....	....	....	1	....	....	....	173.13
Number measured	102,304	23	56	150	395	763	1,494	2,793	4,499	6,662	8,669	10,569	12,348	12,226	11,503	9,696	7,594	5,096	3,283	2,019	1,209	686	288	156	60	37	21	4	2	3	172.00
Not measured....	273	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total.......	102,577	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

TABLE CXXXIV.—*Comparative frequency distribution of statures, by Q. M. C. distribution zones, demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Stature, in centimeters.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
148–149	23	1	8	....	2	6	2	2	2	....	....	....
150–151	55	8	20	2	5	16	2	1	....	1	....	....
152–153	150	22	61	5	7	36	5	4	3	3	1	3
154–155	397	55	172	12	10	114	18	3	6	2	....	5
156–157	760	92	326	29	29	204	17	23	10	6	5	19
158–159	1,480	189	623	62	66	397	49	25	22	21	2	24
160–161	2,785	306	1,083	89	177	787	119	66	43	39	8	68
162–163	4,381	366	1,562	138	339	1,296	266	130	96	46	20	122
164–165	6,754	706	2,183	219	493	2,047	426	212	173	97	17	181
166–167	8,648	726	2,497	287	709	2,838	581	306	258	150	26	270
168–169	10,547	766	2,824	335	1,026	3,452	808	380	367	179	34	376
170–171	12,318	884	2,922	408	1,367	4,061	1,052	473	461	231	28	431
172–173	12,207	746	2,724	422	1,461	3,855	1,110	536	556	237	43	517
174–175	11,467	647	2,345	377	1,430	3,772	1,056	530	519	258	56	477
176–177	9,672	453	1,748	332	1,313	3,170	947	456	522	219	36	476
178–179	7,580	315	1,296	246	1,179	2,353	815	338	449	172	34	383
180–181	5,081	225	782	162	831	1,529	575	255	340	127	14	241
182–183	3,277	105	502	101	539	984	369	170	225	78	16	188
184–185	2,016	52	255	71	362	615	234	89	159	55	8	116
186–187	1,205	41	163	30	215	344	148	75	79	42	9	59
188–189	686	21	85	18	113	227	78	50	39	19	....	36
190–191	287	4	37	8	64	77	27	22	18	12	1	17
192–193	156	4	18	3	38	45	15	13	9	4	1	6
194–195	58	1	9	1	9	19	6	6	3	....	....	4
196–197	39	2	4	1	8	11	5	3	1	2	....	2
198–199	20	....	2	....	4	6	4	1	1	2	....	....
200–201	5	....	....	....	1	4	....	....	....	....	....	....
202–203	1	....	....	....	1	....	....	....	....	....	....	....
204–205	1	....	....	....	1	....	....	....	....	....	....	....
206–207	1	....	....	....	1	....	....	....	....	....	....	....
208–209	4	....	2	....	....	2	....	....	....	....	....	....
Number measured	102,061	6,737	24,253	3,358	11,800	32,267	8,734	4,169	4,361	2,002	359	4,021
Not measured	272	....	....	....	....	....	....	....	....	....	....	....
Total	102,333	....	....	....	....	....	....	....	....	....	....	....
Mean stature, cm	172.00	169.78	170.10	171.88	173.90	172.06	173.48	173.33	174.23	173.44	172.73	173.51
Standard deviation	6.68	6.46	6.62	6.57	6.48	6.50	6.36	6.57	6.30	6.61	6.69	6.41

SECTION B: PROPORTIONAL NUMBER OF THE VARIOUS STATURES TO EACH 1,000 FOR A ZONE.

Stature, in centimeters.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
148–149	0.23	0.15	0.33	....	0.17	0.19	0.23	0.48	0.46	....	....	....
150–151	.54	1.19	.82	0.60	.42	.50	.23	.24	....	0.50	....	....
152–153	1.47	3.27	2.52	1.49	.59	1.12	.57	.96	.69	1.50	2.79	0.75
154–155	3.89	8.16	7.09	3.57	.85	3.53	2.06	.72	1.38	1.00	....	1.24
156–157	7.45	13.66	13.44	8.64	2.46	6.32	1.95	5.52	2.29	3.00	13.93	4.73
158–159	14.50	28.05	25.69	18.46	5.59	12.30	5.61	6.00	5.04	10.49	5.57	5.97
160–161	27.29	45.42	44.65	26.50	15.00	24.39	13.62	15.83	9.86	19.48	22.28	16.91
162–163	42.93	54.33	64.40	41.10	28.73	40.16	30.46	31.18	22.01	22.98	55.71	30.34
164–165	66.18	104.79	90.01	65.22	41.78	63.44	48.77	50.85	39.67	48.45	47.35	45.01
166–167	84.73	107.76	102.96	85.47	60.08	87.95	66.52	73.40	59.16	74.93	72.42	67.15
168–169	103.34	113.70	116.44	99.76	86.95	106.98	92.51	91.15	84.16	89.41	94.71	93.51
170–171	120.69	131.22	120.48	121.50	115.85	125.86	120.45	113.46	105.71	115.38	77.99	107.19
172–173	119.60	110.73	112.32	125.67	123.81	119.47	127.09	128.57	127.49	118.38	119.78	128.58
174–175	112.35	96.04	96.69	112.27	121.19	116.90	120.91	127.13	119.01	128.87	155.99	118.63
176–177	94.77	67.24	72.07	98.87	111.27	98.24	108.43	109.38	119.70	109.39	100.28	118.38
178–179	74.27	46.76	53.44	73.26	99.92	72.92	93.31	81.07	102.96	85.91	94.71	95.25
180–181	49.78	33.40	32.24	48.24	70.42	47.39	65.83	61.17	77.96	63.44	39.00	59.94
182–183	32.11	15.59	20.70	30.08	45.68	30.50	42.25	40.78	51.59	38.96	44.57	46.75
184–185	19.75	7.72	10.51	21.14	30.68	19.06	26.79	21.35	36.46	27.47	22.28	28.85
186–187	11.81	6.09	6.72	8.93	18.22	10.66	16.95	17.99	18.12	20.98	25.07	14.67
188–189	6.72	3.12	3.50	5.36	9.58	7.04	8.93	11.99	8.94	9.49	....	8.95
190–191	2.81	.59	1.53	2.38	5.42	2.39	3.09	5.28	4.13	5.99	2.79	4.23
192–193	1.53	.59	.74	.89	3.22	1.39	1.72	3.12	2.06	2.00	2.79	1.49
194–195	.57	.15	.37	.30	.76	.59	.69	1.44	.69	....	....	.99
196–197	.38	.30	.16	.30	.68	.34	.57	.72	.23	1.00	....	.50
198–199	.20	....	.08	....	.34	.19	.46	.24	.23	1.00	....	....
200–201	.05	....	....	....	.08	.12	....	....	....	....	....	....
202–203	.01	....	....	....	.08	....	....	....	....	....	....	....
204–205	.01	....	....	....	.08	....	....	....	....	....	....	....
206–207	.01	....	....	....	.08	....	....	....	....	....	....	....
208–209	.04	....	.08	....	....	.06	....	....	....	....	....	....
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

TABLE CXXXIV.—*Comparative frequency distribution of statures, by Q. M. C. distribution zones, demobilization*—Continued.

SECTION C: PROPORTIONAL NUMBER OF EACH 1,000 STATURES IN THE VARIOUS DISTRIBUTION ZONES.

Stature, in centimeters.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.	Total.
148–149	43.48	347.83	....	86.96	260.87	86.96	86.96	86.96	....	....	....	1,000
150–151	145.45	363.63	36.36	90.91	290.91	36.36	18.18	....	18.18	....	....	1,000
152–153	146.67	406.67	33.33	46.67	240.00	33.33	26.67	20.00	20.00	6.67	20.00	1,000
154–155	138.54	433.25	30.23	25.19	287.15	45.34	7.56	15.11	5.04	....	12.59	1,000
156–157	121.05	428.95	38.16	38.16	268.42	22.37	30.26	13.16	7.89	6.58	25.00	1,000
158–159	127.70	420.95	41.89	44.59	268.24	33.11	16.89	14.86	14.19	1.35	16.22	1,000
160–161	109.87	388.87	31.96	63.55	282.59	42.73	23.70	15.44	14.00	2.87	24.42	1,000
162–163	83.54	356.54	31.50	77.38	295.82	60.72	29.67	21.91	10.50	4.57	27.85	1,000
164–165	104.53	323.22	32.43	72.99	303.08	63.07	31.39	25.61	14.36	2.52	26.80	1,000
166–167	83.95	288.73	33.19	81.98	328.17	67.18	35.38	29.83	17.34	3.01	31.22	1,000
168–169	72.63	267.75	31.76	97.29	327.30	76.62	36.03	34.80	16.97	3.22	35.65	1,000
170–171	71.77	237.22	33.13	110.98	329.68	85.40	38.41	37.43	18.75	2.27	34.99	1,000
172–173	61.11	223.15	31.57	119.69	315.80	90.94	43.91	45.55	19.42	3.52	42.35	1,000
174–175	56.43	204.50	32.88	124.71	328.95	92.09	46.23	45.26	22.50	4.88	41.60	1,000
176–177	46.84	180.73	34.33	135.75	327.75	97.91	47.15	53.97	22.64	3.72	49.21	1,000
178–179	41.56	170.97	32.45	155.54	310.42	107.52	41.59	59.23	22.69	4.49	50.53	1,000
180–181	44.28	153.91	31.88	163.55	300.93	113.17	50.19	66.91	24.99	2.76	47.43	1,000
182–183	32.04	153.19	30.82	164.48	300.27	112.60	51.87	68.66	23.80	4.88	57.37	1,000
184–185	25.79	126.49	35.22	179.56	305.06	116.07	44.15	78.87	27.28	3.97	57.54	1,000
186–187	34.02	135.27	24.90	178.42	285.47	122.82	62.24	65.56	34.85	7.47	48.96	1,000
188–189	30.61	123.91	26.24	161.72	330.90	113.70	72.89	56.85	27.70	....	52.48	1,000
190–191	13.94	128.92	27.87	223.00	268.29	91.07	76.65	62.72	41.81	3.48	59.23	1,000
192–193	25.64	115.38	19.23	243.59	288.46	96.15	83.33	57.69	25.64	6.41	38.46	1,000
194–195	17.24	155.17	17.24	155.17	327.59	103.45	103.45	51.72	....	....	68.97	1,000
196–197	51.28	102.56	25.64	205.13	282.05	128.21	76.92	25.64	51.28	....	51.28	1,000
198–199	....	100.00	....	200.00	300.00	200.00	50.00	50.00	100.00	....	....	1,000
200–201	....	....	....	200.00	800.00	....	....	....	....	....	....	1,000
202–203	....	....	....	1,000.00	....	....	....	....	....	....	....	1,000
204–205	....	....	....	1,000.00	....	....	....	....	....	....	....	1,000
206–207	....	....	....	1,000.00	....	....	....	....	....	....	....	1,000
208–209	....	500.00	....	....	500.00	....	....	....	....	....	....	1,000
Average proportion for each zone	66.01	237.63	32.90	115.62	316.15	85.58	40.85	42.73	19.62	3.52	39.40	1,000

TABLE CXXXV.—*Comparative frequency distribution of weight, by States, white and colored troops, at demobilization.*

State.	Total.	Weight, in pounds.											Mean weight.
		100–109	110–119	120–129	130–139	140–149	150–159	160–169	170–179	180–189	190–199	200 and over.	
													Lbs.
Alabama	383	4	19	48	81	81	81	35	26	8	.....	....	144.79
Alaska	12	.....	......	......	1	2	2	3	2	2	.....	....	162.00
Arizona	125	.....	2	14	25	27	28	16	5	8	.....	....	148.34
Arkansas	2,538	8	91	267	510	617	514	295	152	49	25	10	146.83
California	414	2	13	55	86	113	70	40	18	12	3	2	145.37
Colorado	208	.....	4	18	49	55	39	23	13	4	1	2	147.38
Connecticut	550	9	37	97	124	128	77	48	21	7	1	1	141.05
Delaware	189	1	9	33	40	51	30	17	4	2	2	....	142.22
District of Columbia	184	3	6	33	42	57	28	7	6	1	.....	1	140.80
Florida	140	.....	7	24	38	34	19	11	5	1	1	....	141.50
Georgia	446	2	26	60	107	106	63	45	23	8	2	4	143.94
Idaho	153	.....	6	13	19	32	37	23	16	5	1	1	150.97
Illinois	6,462	32	247	791	1,405	1,608	1,164	674	331	133	50	27	145.42
Indiana	3,804	12	140	522	889	880	696	369	186	60	26	24	144.78
Iowa	1,543	6	35	111	277	350	331	254	101	55	15	8	150.05
Kansas	978	2	16	80	187	236	199	121	72	36	20	9	150.14
Kentucky	2,753	7	95	398	653	623	497	282	125	46	19	8	144.50
Louisiana	1,726	6	63	191	367	413	335	198	89	36	18	10	146.41
Maine	209	.....	12	39	43	50	34	15	9	4	.....	3	142.97
Maryland	983	10	57	156	240	245	150	67	31	18	4	5	141.81
Massachusetts	1,320	14	96	263	322	302	174	93	33	12	9	2	139.74
Michigan	3,618	15	123	467	834	875	629	405	171	63	17	19	145.07
Minnesota	1,882	5	34	137	309	404	428	298	154	68	31	14	151.37
Mississippi	1,566	6	60	139	311	382	319	196	91	35	17	10	147.54
Missouri	2,752	10	93	335	635	653	484	313	127	62	24	16	145.70
Montana	245	.....	2	20	46	46	63	36	18	9	1	4	151.11
Nebraska	791	2	29	44	129	175	167	129	66	34	11	5	151.23
Nevada	16	.....	......	3	1	3	5	2	2	......	.....	....	149.50
New Hampshire	94	2	12	27	10	23	7	12	......	......	.....	1	136.95
New Jersey	3,103	23	218	579	800	708	416	211	80	36	17	15	140.29
New Mexico	221	1	11	29	46	60	44	14	11	2	1	2	144.00
New York	8,965	82	598	1,628	2,319	2,067	1,201	629	268	105	41	27	140.43
North Carolina	570	2	18	64	127	147	96	65	30	13	4	4	146.17
North Dakota	335	1	4	24	56	76	70	62	29	12	1	....	150.89
Ohio	6,900	35	264	928	1,571	1,649	1,291	714	277	102	47	22	144.45
Oklahoma	2,274	5	59	227	408	585	441	288	157	62	26	16	148.47
Oregon	1,049	3	23	85	207	251	251	128	70	18	8	5	148.32
Pennsylvania	10,408	64	519	1,643	2,632	2,367	1,730	848	370	138	58	39	142.46
Rhode Island	209	1	17	38	58	42	27	14	7	3	1	1	140.19
South Carolina	205	.....	12	23	45	53	29	29	9	4	1	....	144.89
South Dakota	399	1	3	29	66	92	74	73	31	22	5	3	152.19
Tennessee	781	2	32	98	170	188	145	75	42	18	8	3	145.54
Texas	4,282	19	130	463	828	1,063	821	509	270	126	26	27	147.36
Utah	99	.....	1	9	20	25	18	14	8	2	2	....	149.25
Vermont	93	.....	5	17	25	20	13	5	2	3	2	1	142.67
Virginia	1,421	10	45	165	291	343	290	174	59	26	11	7	146.05
Washington	1,984	4	55	161	403	480	407	254	157	38	11	14	148.39
West Virginia	1,516	6	40	183	303	371	292	187	87	34	10	3	146.60
Wisconsin	2,616	9	74	256	513	601	551	371	133	77	21	10	147.78
Wyoming	71	2	3	7	6	18	15	12	6	2	.....	....	148.44
Number measured	83,585	428	3,465	11,041	18,674	19,777	14,892	8,703	4,000	1,621	599	385	144.89
Not measured	18,992	.....	......	......	......	......	......	......	......	......	.....	....	....
Total	102,577	.....	......	......	......	......	......	......	......	......	.....	....	....

TABLE CXXXVI.—*Comparative frequency distribution of chest circumference (rest), by Q. M. C. distribution zones, white and colored troops, at demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Chest circumference, in centimeters.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
60-64	41	3	21	1	3	11	1	....	....	1	....	....
65-69	54	6	15	....	5	18	3	2	4	....	....	1
70-74	272	18	62	7	30	88	31	11	12	2	1	10
75-79	2,088	165	553	101	271	592	197	72	56	19	6	56
80-84	17,385	1,265	4,499	577	2,226	5,045	1,692	658	667	247	60	449
85-89	39,796	2,556	9,549	1,281	4,822	12,209	3,742	1,684	1,725	646	127	1,455
90-94	29,821	1,909	6,749	993	3,294	9,723	2,268	1,294	1,339	723	125	1,407
95-99	10,190	641	2,241	314	965	3,695	628	378	456	309	31	529
100-104	1,831	130	437	62	124	705	110	58	74	46	3	82
Number measured	101,478	6,693	24,126	3,336	11,740	32,086	8,672	4,154	4,333	1,993	356	3,989
Not measured	855	....	....	....	....	....	....	....	....	....	....	....
Total	102,333	....	....	....	....	....	....	....	....	....	....	....
Mean chest circumference	88.62	88.41	88.37	88.50	88.15	88.96	87.96	88.66	88.90	89.97	88.78	89.65
Standard deviation	5.12	5.25	5.18	5.18	4.92	5.20	4.89	4.88	4.97	5.06	4.86	4.96

SECTION B: PROPORTIONAL NUMBER OF THE VARIOUS CHEST CIRCUMFERENCES (REST) TO EACH 1,000 FOR A ZONE.

60-64	0.40	0.45	0.87	0.30	0.26	0.34	0.12	....	....	0.50	....	....
65-69	.53	.90	.62	....	.43	.56	.35	0.48	0.92	....	....	0.25
70-74	2.68	2.69	2.57	2.10	2.56	2.74	3.57	2.65	2.77	1.00	2.81	2.51
75-79	20.58	24.65	22.92	30.28	23.08	18.45	22.72	17.33	12 92	9.53	16.85	14.04
80-84	171.32	189.01	186.48	172 96	189.60	157.24	195.11	158.40	153.93	123.93	168.54	112.56
85-89	392.16	381.89	395.80	383.99	410.73	380.51	431.50	405.39	398.11	324.13	356.74	361.75
90-94	293.88	285.22	279.73	297.66	280.57	303.03	261.53	310 78	309.02	362 77	351.12	352.72
95-99	100.42	95.77	92.89	94.13	82.18	115.16	72.42	90.99	105.24	155.05	95.51	132.62
100-104	18.05	19.42	18.11	18.58	10.56	21.97	12.68	13.96	17.08	23.08	8.43	20.56
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000 00	1,000.00	1,000.00	1,000.00

SECTION C: PROPORTIONAL NUMBER OF EACH 1,000 CHEST CIRCUMFERENCES (REST) IN THE VARIOUS DISTRIBUTION ZONES.

Chest circumference, in centimeters.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.	Total
60-64	73.17	512.20	24.39	73.17	268.29	24.39	....	....	24.39	....	....	1,000
65-69	111.11	277.78	....	92.59	333.33	55.56	37.04	74.07	....	....	18.52	1,000
70-74	66.18	227.94	25.74	110.29	323.53	113.97	40.44	44.12	7.35	3.68	36.76	1,000
75-79	79.02	264.85	48.37	129.79	283.52	94.35	34.48	26.82	9.10	2.87	26.82	1,000
80-84	72.76	258.79	33.19	128.04	290.19	97.33	37.85	38.37	14.21	3.45	25.83	1,000
85-89	64.23	239.95	32.19	121.17	306.79	94.03	42.32	43.35	16.23	3.19	36.56	1,000
90-94	64.02	226.32	33.30	110.46	326.05	76.05	43.29	44.90	24.24	4.19	47.18	1,000
95-99	62.90	219.92	30.81	94.70	362 61	61.63	37.10	44.75	30.32	3.34	51.91	1,000
100-104	71.00	238.67	33.86	67.72	385.04	60.08	31.68	40.42	25.12	1.64	44.78	1,000
Average chest for each zone.	65.96	237.75	32.87	115.69	316.19	85.46	40.94	42.70	19.64	3.51	39.31	1,000

TABLE CXXXVII.—*Comparative frequency distribution of waist circumference, by Q. M. C. distribution zones, white and colored troops, at demobilization.*

SECTION A: ABSOLUTE NUMBERS.

Waist circumference, in centimeters.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
60–64	350	30	108	12	23	116	28	3	9	7	3	11
65–69	4,373	404	1,192	163	345	1,541	348	63	121	53	8	135
70–74	24,442	1,895	6,372	765	2,496	7,985	2,072	674	898	387	77	821
75–79	36,986	2,464	8,758	1,242	4,355	11,441	3,180	1,565	1,715	705	122	1,439
80–84	22,916	1,237	5,042	784	2,915	7,153	1,988	1,166	1,069	538	101	923
85–89	8,971	446	1,880	264	1,200	2,744	796	512	391	229	29	480
90–94	2,412	144	520	82	277	788	185	125	95	51	9	136
95–99	806	44	205	28	97	252	63	35	27	16	......	39
100–104	240	23	64	13	24	71	10	11	11	2	3	8
105–109	74	2	22	4	10	14	7	2	7	2	1	3
110	6	......	1	......	1	2	1	1	......	......	......	......
Number measured	101,576	6,689	24,164	3,357	11,743	32,107	8,678	4,157	4,343	1,990	353	3,995
Not measured	757	......	......	......	......	......	......	......	......	......	......	......
Total	102,333	......	......	......	......	......	......	......	......	......	......	......
Mean waist circumference	77.92	77.05	77.53	77.94	78.48	77.79	77.94	79.37	78.35	78.81	78.49	78.73
Standard deviation	5.96	5.94	6.00	6.04	5.80	5.99	5.83	5.64	5.69	5.83	6.03	6.12

SECTION B: COMPARATIVE NUMBER OF THE VARIOUS WAIST CIRCUMFERENCES TO EACH 1,000 FOR A ZONE.

Waist circumference, in centimeters.	Total.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.
60–64	3.45	4.49	4.47	3.57	1.96	3.61	3.23	.72	2.07	3.52	8.50	2.75
65–69	43.06	60.40	49.33	48.56	29.38	48.01	40.10	15.15	27.86	26.63	22.66	33.79
70–74	240.64	283.30	263.70	227.88	212.55	248.71	238.76	162.12	206.77	194.49	218.13	205.51
75–79	364.13	368.37	362.43	369.97	370.85	356.34	366.44	376.47	394.89	354.27	345.61	360.20
80–84	225.60	184.93	208.66	233.54	248.23	222.79	229.08	280.48	246.14	270.34	286.12	231.04
85–89	88.32	66.68	77.80	78.64	102.19	85.48	91.72	123.16	90.03	115.07	82.15	120.15
90–94	23.75	21.53	21.52	24.43	23.59	24.55	21.32	30.07	21.87	25.62	25.50	34.04
95–99	7.94	6.58	8.48	8.34	8.26	7.85	7.26	8.42	6.22	8.04	......	9.76
100–104	2.36	3.44	2.65	3.87	2.04	2.21	1.15	2.65	2.53	1.00	8.50	2.00
105–109	.73	.30	.91	1.19	.85	.44	.81	.48	1.61	1.00	2.83	.75
110	.06	......	.04	......	.09	.06	.12	.24	......	......	......	......
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

SECTION C: PROPORTIONAL NUMBER OF EACH 1,000 WAIST CIRCUMFERENCES IN THE VARIOUS DISTRIBUTION ZONES.

Waist circumference, in centimeters.	Zone 1.	Zone 2.	Zone 4.	Zone 5.	Zone 7.	Zone 8.	Zone 9.	Zone 10.	Zone 11.	Zone 12.	Zone 13.	Total.
60–64	85.71	308.57	34.29	65.71	331.43	80.00	8.57	25.71	20.00	8.57	31.43	1,000
65–69	92.39	272.58	37.27	78.89	352.39	79.58	14.41	27.67	12.12	1.83	30.87	1,000
70–74	77.53	260.70	31.30	102.12	326.69	84.77	27.58	36.74	15.83	3.15	33.59	1,000
75–79	66.62	236.79	33.58	117.75	309.33	85.98	42.31	46.37	19.06	3.30	38.91	1,000
80–84	53.98	220.02	34.21	127.20	312.14	86.75	50.88	46.65	23.48	4.41	40.28	1,000
85–89	49.72	209.56	29.43	133.76	305.87	88.73	57.07	43.58	25.53	3.23	53.51	1,000
90–94	59.70	215.59	34.00	114.84	326.70	76.70	51.82	39.39	21.14	3.73	56.38	1,000
95–99	54.59	254.34	34.74	120.35	312.66	78.16	43.42	33.50	19.85	......	48.39	1,000
100–104	95.83	266.67	54.17	100.00	295.83	41.67	45.83	45.83	8.33	12.50	33.33	1,000
105–109	27.03	297.30	54.05	135.14	189.19	94.59	27.03	94.59	27.03	13.51	40.54	1,000
110	......	166.67	......	166.67	333.33	166.67	166.67	......	......	......	......	1,000
Average proportion for each zone	65.85	237.89	33.05	115.61	316.09	85.43	40.93	42.76	19.59	3.48	39.33	1,000

TABLE CXXXVIII.—*Comparative frequency of eye color in the various States of nativity of demobilized men.*

State.	Total.	Clear blue.	Blue with brown spots.	Light. brown.	Dark brown.	No color.
Alabama	1,932	246	881	274	515	16
Alaska	13	7	2	1	3	....
Arizona	130	43	32	24	30	1
Arkansas	2,582	1,064	423	381	701	13
California	483	189	108	84	97	5
Colorado	227	93	46	47	41	....
Connecticut	997	464	138	192	198	5
Delaware	300	127	71	29	72	1
District of Columbia	231	87	34	31	79	....
Florida	1,024	97	443	146	328	10
Georgia	3,403	330	1,433	460	1,138	42
Idaho	164	77	23	46	17	1
Illinois	6,708	3,112	1,363	1,221	995	17
Indiana	3,955	1,265	1,616	450	598	26
Iowa	1,610	679	451	251	220	9
Kansas	1,015	433	248	167	157	10
Kentucky	2,934	565	1,510	280	545	34
Louisiana	2,079	362	315	387	1,006	9
Maine	694	365	90	162	60	17
Maryland	1,142	387	222	191	331	11
Massachusetts	4,795	2,365	521	1,043	739	127
Michigan	3,728	1,821	626	728	538	15
Minnesota	1,951	969	485	280	211	6
Mississippi	2,102	582	435	375	694	16
Missouri	2,847	651	1,420	266	471	39
Montana	266	122	41	64	38	1
Nebraska	823	353	218	124	126	2
Nevada	18	2	5	7	4	....
New Hampshire	414	201	59	101	47	6
New Jersey	3,188	1,374	477	665	653	19
New Mexico	230	69	38	54	68	1
New York	9,240	3,845	1,247	1,716	2,384	48
North Carolina	1,815	479	366	210	734	26
North Dakota	358	158	101	58	41	....
Ohio	7,094	3,027	1,336	1,387	1,297	47
Oklahoma	2,316	1,008	408	404	486	10
Oregon	1,070	529	164	184	190	3
Pennsylvania	10,901	4,381	1,795	2,409	2,257	59
Rhode Island	403	186	41	89	84	3
South Carolina	829	128	296	128	257	20
South Dakota	416	177	114	63	60	2
Tennessee	2,815	426	1,463	442	462	22
Texas	4,374	1,511	904	787	1,145	27
Utah	105	51	18	24	12	....
Vermont	447	229	49	99	41	29
Virginia	1,930	614	339	243	723	11
Washington	2,025	986	332	361	334	12
West Virginia	1,697	726	335	317	311	8
Wisconsin	2,677	1,441	474	483	273	6
Wyoming	80	31	15	20	13	1
Total	102,577	38,354	23,571	17,955	21,824	793

TABLE CXXXIX.—*Comparative frequency of hair color in various States of nativity of demobilized men.*

State.	Total.	No color.	Flaxen.	Light brown.	Medium brown.	Dark brown.	Red.	Red and black.
Alabama	1,932	19	16	287	782	776	20	32
Alaska	13	...	1	5	7	...	...	...
Arizona	130	1	2	25	20	72	...	10
Arkansas	2,582	12	131	490	471	1,1[illegible]6	31	301
California	483	4	20	126	87	213	5	28
Colorado	227	...	14	49	44	100	3	17
Connecticut	997	4	60	160	187	518	16	52
Delaware	300	2	3	55	54	168	2	16
District of Columbia	231	1	8	40	23	143	1	15
Florida	1,024	7	8	152	351	477	17	12
Georgia	3,403	39	29	449	1,183	1,619	43	41
Idaho	164	1	11	45	25	78	2	2
Illinois	6,708	20	329	2,000	1,649	2,238	109	363
Indiana	3,955	20	237	995	1,241	1,343	49	70
Iowa	1,610	4	122	422	376	622	15	49
Kansas	1,015	6	62	261	205	425	14	42
Kentucky	2,934	28	63	563	1,083	1,081	39	77
Louisiana	2,079	10	29	270	237	1,360	13	160
Maine	694	17	38	118	147	360	3	11
Maryland	1,142	7	53	201	186	604	19	72
Massachusetts	4,795	126	281	804	849	2,498	67	170
Michigan	3,728	8	280	1,190	646	1,484	40	80
Minnesota	1,951	4	195	587	430	629	40	66
Mississippi	2,102	13	43	411	381	1,159	15	80
Missouri	2,847	24	97	646	1,003	962	34	81
Montana	266	23	62	45	116	6	14	...
Nebraska	823	3	51	219	162	350	11	27
Nevada	18	...	...	6	1	11	...	...
New Hampshire	414	7	25	67	85	205	8	17
New Jersey	3,188	17	152	723	431	1,667	50	148
New Mexico	230	3	11	28	31	144	...	13
New York	9,240	39	347	1,765	1,224	5,212	138	515
North Carolina	1,815	25	38	228	278	1,207	14	25
North Dakota	358	2	25	102	78	134	6	11
Ohio	7,094	30	472	2,183	1,176	3,007	67	159
Oklahoma	2,316	7	103	465	441	1,057	28	215
Oregon	1,070	63	302	234	414	21	32	4
Pennsylvania	10,901	57	529	2,329	1,588	5,703	136	559
Rhode Island	403	2	19	52	84	219	6	21
South Carolina	829	19	9	110	261	400	6	24
South Dakota	416	6	40	107	92	154	4	13
Tennessee	2,815	21	40	488	1,255	930	39	42
Texas	4,371	19	310	742	712	2,014	68	479
Utah	105	...	15	29	18	39	2	2
Vermont	447	28	26	90	73	214	5	11
Virginia	1,930	13	67	309	275	1,143	20	103
Washington	2,025	11	107	550	450	811	33	63
West Virginia	1,697	6	88	382	244	871	23	83
Wisconsin	2,677	8	157	880	686	799	20	127
Wyoming	80	1	5	22	19	23	2	8
Total	102,577	787	5,132	22,506	21,656	46,446	1,329	4,516

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